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Reflective functioning and attachment in adolescent eating disorders

Laurie Siddell

Doctorate in Clinical Psychology
University of Edinburgh
May 2017

DClinPsychol Declaration of Own Work (Thesis)

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Research Portfolio Abstract

Introduction: A systematic review was undertaken to identify any psychological predictors of treatment dropout for individuals diagnosed with an eating disorder, to help inform psychological therapy and reduce attrition. An empirical study was conducted to understand developmental psychological mechanisms at play in the aetiology and maintenance of eating disordered symptomology by assessing reflective functioning and attachment from a trans-diagnostic perspective.

Methods: Twenty-one papers were identified through a systematic search of databases using predefined extraction criteria, identifying psychological predictors of treatment dropout in eating disorders. Fourteen female adolescents with a diagnosis of an eating disorder were recruited to the empirical study from CAMHS inpatient and outpatient departments in NHS Scotland, as well as eighteen same age controls from local secondary schools. Participants completed questionnaires regarding eating behaviour, difficulties in emotion regulation, reflective functioning and were interviewed using the Adult Attachment Projective.

Results: The systematic review revealed varied psychological predictors of dropout falling onto a continuum ranging from maturity fears to interpersonal difficulties. Results did not significantly differ for inpatient

or outpatient treatment or diagnosis. The empirical study found adolescents with an eating disorder to have significantly more difficulties with their emotion regulation and reflective functioning as well as a more insecure attachment style when compared to controls, none of which were weight dependent.

Conclusion: Further research is required to operationalise a definition of dropout. Although eating disorders can be seen as a defence mechanism to control and avoid emotional distress, this actually exacerbates them and causes disengagement from treatment. Clinical interventions need to focus on therapeutic rapport from the outset of treatment in order to reduce interpersonal difficulties leading to attrition. The results of the empirical study support the use of early intervention and person centred therapies for adolescents with an eating disorder, even when acutely starved. Specifically therapies that target reflective functioning and take insecure attachment styles into account may improve psychological efficacy and engagement.

Keywords: eating disorders, dropout, reflective functioning, attachment, mentalization.

1) Psychological predictors of treatment dropout for individuals diagnosed with an eating disorder: a systematic review

Laurie Siddell^{*ab} Fiona Duffy^{ab} and Angus MacBeth^b

^aNHS Lothian CAMHS, The Royal Edinburgh Hospital, Edinburgh

^bThe School of Health in Social Science, University of Edinburgh

*Corresponding author email address: lauriesiddell@hotmail.com

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Running title: Psychological predictors of dropout in ED

See Research Portfolio Appendix 3b – Author's Guidelines, p 204.

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Abstract

Background: Treatment dropout with individuals diagnosed with an eating disorder is a significant issue for treatment outcomes and psychological intervention. We systematically reviewed the literature on psychological predictors of dropout and attrition.

Methods: A systematic review was conducted using the following databases: Web of Science, PubMed, Ovid, Cochrane Central Register for Controlled Trials, www.greylit.org and Google Scholar. Reference lists of the included papers were also searched.

Results: Twenty-one studies met the inclusion criteria. Results showed varied psychological predictors of dropout ranging from maturity fears to interpersonal difficulties. Results did not significantly differ for inpatient or outpatient treatment or diagnosis, though the risk of bias of included studies was poor.

Discussion: Results suggest further research is required to operationalise a definition of dropout. Clinical interventions need to focus on therapeutic rapport from the outset of treatment in order to reduce interpersonal difficulties leading to attrition.

Keywords: eating disorder; dropout; psychological; predictors; disengagement

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Eating disorders (ED) are often protracted, with recovery diminishing and chronicity becoming more entrenched as a function of increasing length and severity of illness (1; 2). Evidence is accumulating to show early intervention is critical for successful treatment outcome (2; 3), such as results from the pilot trial 'First episode and Rapid Early intervention for Eating Disorders' (4). However, high dropout rates seen in an ED population pose a serious obstacle to successful treatment (5), occurring in 20 to 51% of inpatients and 29 to 73% of outpatients (6).

All ED diagnoses report an elevated mortality risk, with anorexia nervosa (AN) being the most striking (7). Among surviving patients, review evidence suggests that less than half recover on average, with a third improving and 20% remaining chronically ill (8). Vomiting, bulimia nervosa (BN), purgative abuse, chronicity and obsessive-compulsive personality symptoms are associated with an unfavourable prognosis.

Outcome predictors for AN have been reported to be related to the severity and duration of the illness, with psychiatric comorbidity predicting outcome for BN (9). Binge eating disorder (BED) and other specified feeding and eating disorders (OSFED), although encompassing a smaller literature base, show outcomes associated to interpersonal factors, over-evaluation of shape and weight and low self-esteem (9; 10). Nonetheless, current research reports that only a few prognostic factors

have been reliably identified, with most predictors of outcome having limited or conflicting results (10).

Although much of the literature on ED focuses on AN and BN, clinical observation and research have demonstrated that whilst distinct diagnoses, they have substantial similarities (11), including similarities in disordered behaviour (12) and cognitions (13). Furthermore, individuals with a diagnosis of AN do not respond to treatment as well as individuals with other ED diagnoses (14). However, it has been noted that a characteristic of relapse in ED recovery can involve navigating from one ED diagnosis to another (8; 15; 16). Therefore diagnostic change and instability appears an important covariate when considering treatment outcome.

Treatment dropout is not necessarily associated with early negative severe or complex characteristics, as those dropping out initially present with less negative self-image and fewer psychological problems (17). In addition, unexpected improvement in ED diagnostic symptoms is observed in ~71% of treatment dropouts at follow up (18), with partial recovery acting as an important change to motivation. Nevertheless, those who engage in therapy show shorter duration of illness (19). Therefore, reducing dropout could potentially lead to better outcomes, particularly when early intervention is successful (20).

It has been highlighted that methodological inconsistencies such

as lack of measurement reliability and understanding in this area may partly be a consequence of lack of consensus as to what constitutes dropout from treatment (21), with reported variation in operational definitions of premature termination and classification of dropout status (22) affecting reported treatment outcomes. One problem with defining dropout in terms of treatment duration or number of sessions completed is that dropout can occur at any number of sessions, therefore making it difficult to quantify *when* dropout occurs (23). Differential dropout (dropping out at different times and for different reasons) between treatment groups can also lead to bias when comparing treatment outcomes across conditions (24). Early dropout may limit how meaningful treatment evaluation is, as patients may not have been in treatment for an adequate length of time to derive significant benefit (24). Also, the authors argue that even if intention to treat analyses are used, this may create bias due to misleading comparisons, and mask understanding of the mechanisms leading to dropout (25). Another critique is that only treatment attrition is addressed (26). The authors contend that much data lost during post-intervention collection, or measurement attrition, is not reported and instead classified as missing data, which most research studies entirely neglect to note. Finally, although dropout is an outcome variable, the process of engagement is a dynamic, multifactorial process (27). These authors note that although physical presence or attendance is necessary, engaging with services is a

far more complex phenomenon encompassing factors including acceptance of a need for help, therapeutic alliance, satisfaction with services and collaborative working. Expanding the definition of dropout could then begin to explain disengagement as difficulties experiencing an ED, rather than purely dropping out of treatment.

Nordbø and colleagues (28) state that ED treatment dropout has been related to a variety of factors including low cooperativeness (29), lack of trust (30) and patients experiencing the treatment to be too difficult (5). However, others highlight those patients who dropout of and complete treatment are in fact more similar than distinct in regards to psychiatric symptomology (31), therefore suggesting no difference between the two groups. Others argue that the role of ED treatment exacerbates dropout in the fact that it could be argued as iatrogenic, such as incentivising weight loss to gain access to treatment when specifying BMI criteria for access to services, resulting in patients' needs being lost during treatment (32). Examples include common negative schema such as low self-esteem and perfectionism augmenting existing or initiating new ED behaviour, or services being too highly structured allowing avoidance of responsibility, autonomy and independence to dominate (2). This may then lead to impact more on patients' engagement with services and their deciding whether to engage in treatment. The authors

call this ironic, given that both intra and interpersonally those with ED often feel invisible, unheard and worthless (33).

Nonetheless, current literature reports that patients with AN binge/purging subtype are not only more likely to drop out of treatment compared to other ED diagnoses, but to drop out earlier, suggesting that impulsivity may play a role in the decision to drop out of care (34). The authors suggest that therapeutic progress with patients may occur primarily during the first weeks of treatment and that dropout may occur when progress slows down. Conversely, Waller (35) reported that dropout is characterised by more severe perceived ED characteristics rather than actual severity, suggesting more cognitive processes affecting commitment and motivation to treatment than impulsivity or therapeutic alliance. However, evidence also suggests that drop out is not related to higher levels of eating pathology, but higher levels of the narcissistically abused defensive personality style, believing others to be hostile and demanding whilst themselves being martyred (36). Equally, Fassino and colleagues (37) found those who did not improve from ED at data collection showed higher maturity fears and levels of ascetism, with their psychopathology more linked to their temperamental features.

Although treatment termination may be premature, it does not necessarily mean that the treatment was not successful and that the individual has not reached recovery. Indeed a recent meta-analysis (38)

recommends that future research should include standardisation of operational definitions, specification of timing and exploration of additional moderator variables of dropout.

Rationale for Systematic Review

Despite these findings, the specific underlying reasons and predictors of treatment dropout are still unclear (39), partly as a consequence of a lack of high quality evidence that ED pathology is predictive of dropout (17). Although psychological factors in ED treatment dropout have been identified in the literature, they have not been systematically reviewed. The aims of this review are 1) to identify psychological predictors of dropout and 2) to identify methodological sources of bias in the literature. It is of specific interest to assess whether there are any different psychological predictors in relation to whether patients were receiving inpatient or outpatient care, given the differing dropout rates currently reported. This potentially may be due to decreased dropout in inpatient settings because of compulsory treatment, but by examining whether psychological factors vary across both settings vary will begin to examine predictors, which psychological therapy can then begin to consider. The review will also include several ED diagnoses to review if a more trans-diagnostic approach and focus on

symptomology is more suitable to assess the psychological predictors of ED treatment dropout.

METHOD

Data Source and Search Strategy

The research questions were conducted using the evidence based guidelines for systematic reviews as per the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; 40). The full study protocol was registered using PROSPERO (CRD42016052001).

The following electronic sources were searched from 1980 to 27th March 2017: Web of Science, PubMed, Ovid (PsychARTICLES full text, Ovid MEDLINE(R) In-process and other non-indexed citations and Ovid MEDLINE(R), PsychINFO, AMED), Cochrane Central Register for Controlled Trials (CENTRAL), www.greylit.org and Google Scholar.

The following combinations of search terms were used:

1. "eating disorder*" OR anorex* OR bulim* OR "binge eat*" OR purg* ;
OR
2. "eating disorder not otherwise specified" OR "other specified feeding or eating disorder"; AND

3. dropout OR attrition OR termination OR adherence OR disengagement.

The reference lists from identified articles and relevant review papers were also included. Grey literature was reviewed using Google Scholar and www.greylit.org. The final searches were completed on 27th March 2017.

Inclusion Criteria

Papers were eligible for inclusion if they met the following criteria: (a) published in English language, (b) reporting an eating disorder diagnosis, and (c) used a definition of dropout. The search was limited to articles published since 1980 to ensure consistency in the *Diagnostic and Statistical Manual for Mental Disorders* (DSM; 41-44) and *International Classification of Mental and Behavioural Disorders* (ICD; 45; 46) reporting of diagnoses for eating disorders.

Exclusion Criteria

Articles with the following terms were excluded: obese, bariatric, weight loss surgery, loss of control eating and dieting. Book chapters, reviews, conference papers, single case studies and qualitative studies were also excluded. Psychological predictors linked to shape and weight were not included in the present review. Although the researchers acknowledge that traits such as these are highly relevant to an ED

diagnosis, they have been omitted as core beliefs such as an overevaluation of eating, shape, weight and their control are central to ED (47), thus presenting a circular argument. It was also anticipated that several traits were likely not to be mutually exclusive, such as difficulties with social functioning and interpersonal functioning, but as each was expected to transpire from different research studies with differing methodologies, assessments and operationalisation, all were reviewed as separate variables.

Study Selection

Search results were cross-referenced and all duplicate records removed. Titles and/or abstracts not relating to eating disorders were removed. Next, the title and abstract of every record was reviewed against the inclusion criteria. The full text of all remaining records were then examined to confirm eligibility.

Data Extraction

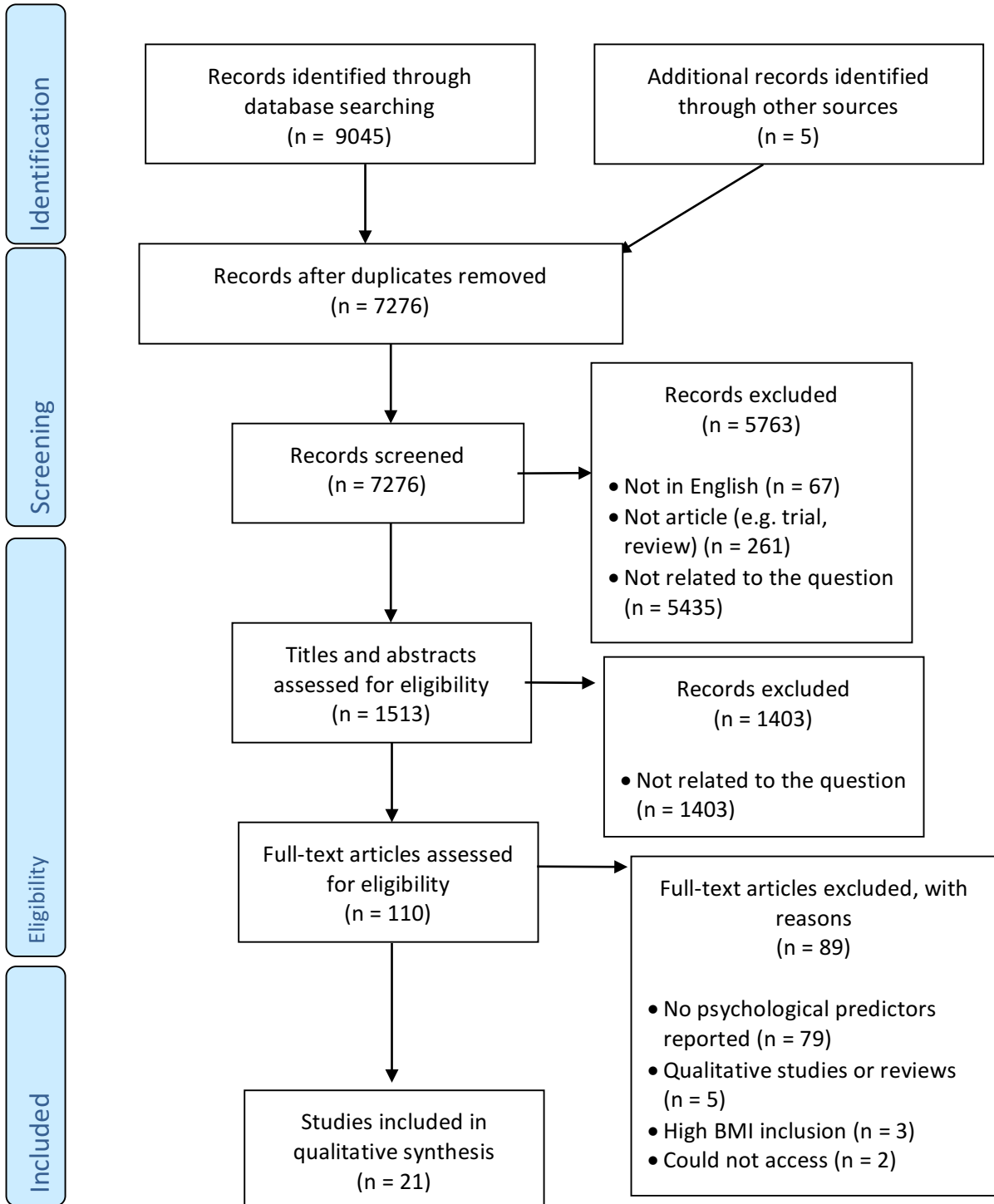
Data was extracted using a pro-forma detailing: (a) year of publication, (b) author(s), (c) therapeutic setting, (d) design, (e) diagnosis/diagnoses, (f) sample with percentage of dropout, (g) age, (h)

illness duration, (i) treatment type, (j) type of dropout, (k) assessment(s) used, and (l) psychological predictors of dropout. Only studies which all authors agreed met the inclusion criteria were included. A flow diagram of the selection process based on the PRISMA guidelines is presented in Figure 1. Data extraction (Appendix 1a) was completed by the primary researcher with an independent rater also extracting 20% of the included studies to check for consistency.

Studies were assessed using the Cochrane Risk of Bias tool (Appendix 1b; 48). This rates studies as having a low, unclear or high risk of bias according to their determined risk of selection, performance, detection, attrition, reporting and other biases. Risk of bias assessment was performed by the primary researcher and separately by a doctorate level peer for all included studies. Discrepancies were resolved by discussion with no consultation by a third reviewer needed. Inter-rater reliability was calculated as 78.57%, which is a substantial level of agreement (49).

A narrative synthesis of the data was conducted due to the variation in study methods. A meta-analysis was not possible due to the heterogeneity across studies in terms of population, definition and timing of dropout, outcome measures and assessment tools.

Figure 1. A flow diagram of the selection process based on the PRISMA guidelines



Studies which did not clearly define dropout but included a more generic definition of 'did not complete treatment' were still included in the analysis due to ongoing discrepancies between definitions in research making direct comparison impossible.

RESULTS

Characteristics

Twenty-one studies met the inclusion criteria and were included for review: comprising fifteen outpatient studies and six inpatient studies (Tables 1 and 2). The majority of participants were female (98.6%), with two studies not reporting gender (25; 50). Some studies removed males from participants or analysis due to small numbers, whilst others included a few male participants but did not differentiate the analysis by gender.

Inpatient settings (Table 1)

All six inpatient studies used retrospective observational designs, with four studies including participants with DSM diagnosed AN (34; 51-53) and two studies also including eating disorders not otherwise specified (EDNOS) (54; 55). Initial sample size ranged from 75 to 601

with percentage dropout ranging from 20.2% to 53.3%. Age and illness duration for dropouts was only recorded by two studies (54; 55). All inpatient treatment was similar across the studies in that there was a primary focus on weight restoration and normalisation of eating behaviours with input from multi-disciplinary teams and some psychological input, mainly cognitive behavioural techniques. Standardised contracts were used for two studies (52; 34). Two studies broke down the treatment into three separate phases; a nutritional, psychological and weight stabilisation phase (52) and observation, residential and semi-residential phases (55).

Outpatient settings (Table 2)

Of the fifteen studies set in an outpatient setting, most were exploratory, with two being prospective (56; 57) and six being retrospective (50; 58-62), with one retrospectively analysing dropout from a randomised control trial (RCT) they had completed (60). One other was a multi-site controlled study (63); one a longitudinal naturalistic study (64); one randomised prospective (25); one controlled (65) and two RCTs (66; 67). Studies varied in the diagnosis of participants with two recruiting only AN (25; 66); four recruiting only BN and specifying by subtype (59; 61; 63; 65); one including BN and BED (56); three with AN, BN and EDNOS (57; 58; 67); one with AN defined by subtype (62); one with BN, BED and EDNOS (60) and two not specifying

between diagnoses (50; 64). Initial sample size ranged from 32 to 840 with percentage dropout ranging from 12.0% to 61.9%. Age and illness duration for dropouts were both only reported by four studies (50; 59; 60; 64). Outpatient treatment was mainly cognitive behavioural therapy (CBT), either individual CBT (25; 57; 61; 63), CBT for AN (66), group CBT (56), CBT-E (58), web based CBT (60) or internet based therapy which was CBT informed (65). Studies also included specialist supportive clinical management (SSCM) (66); psychotherapy (67) or antidepressant administration, which also was combined for an antidepressant and CBT group (25). Three studies provided similar day hospital treatment programmes, involving a wide variety of treatment such as supervised meals, psychotherapy and group therapy (50; 62; 63).

Measurement of dropout

There was substantial variation in definitions of dropout. The majority (n = 15) of included studies defined dropout as a patient orientated event, either self-discharging or absconding without professional input (25; 34; 50; 53; 55-64; 68). Two inpatient studies defined dropout as a unilateral decision, whether by staff or patient, to discontinue treatment (51; 54). Three studies also detailed withdrawal as decided by the treatment team with reasons, but excluded these

participants from analysis (25; 58; 63). Another detailed the initial sample with numbers of who remained in treatment but did not complete the session six questionnaires for a variety of reasons; and patients who started treatment but had not yet reached session six at the time of data collection (57), but again did not include them in their analysis. A further study (50) noted treatment not offered or not taken up by patients who were assessed, but were not included in the analysis as well as those who were randomised but who did not engage in treatment (66).

Disengagement was operationally defined in terms of timing. Early dropouts were defined as termination within the period of behavioural observation, before starting the behavioural protocol governing privileges, within the first two weeks of treatment (54); within the first six weeks of treatment (51); participants who did not start the program (non-starters) or stopped the treatment during part one (after 7 out of 16 treatment modules completed, 7 therapeutic contacts and 4 assignments) (60); less than 15 weeks of treatment completed (66); and leaving during the first week of the observational phase, before a personalised contract was signed (52). Late dropout was defined as dropping out in the period after reaching their target weight (54); completing 15 to 29 weeks of treatment (66); those who stopped treatment after completion of part one or during part two of their treatment (final 9 out of 16 treatment modules, 14 therapeutic contacts

and 6 assignments) (60); after reaching target weight (51); and dropout after the treatment contract was signed, beyond the first week of hospitalisation (52). Only two studies defined middle drop out as after the third week of treatment but before reaching the target weight (54) and after the sixth week but before reaching target weight (51).

Other studies defined withdrawal as voluntarily terminating treatment before the treatment goal was reached, such as reaching a BMI of 20 (34). One study also described dropouts as active non-participants or passive non-participants (68), with active non-participants defined as having initially agreed to participate in longitudinal follow-ups, but not participating in the final 36-month follow-up of the study and those who could not be traced passive non-participants.

Five studies did not include a clear definition for dropout but stated when a patient did not complete treatment (50; 56; 57; 63; 65).

There was also variation in definition between inpatient and outpatient settings. Inpatient studies considered any one-sided (therapist or patient) decision for premature termination more often (51; 52; 54), with three studies only using the term dropout for the patient's decision to leave treatment (34; 53; 55). Outpatient studies were less likely to have included a definition or a less operational definition of 'did not complete treatment'.

Table 1. Inpatient settings descriptives

(Identifier) Author (Publication year)	Design	Diagnosis/diagnoses	Sample with percentage dropout	Mean age of dropouts (\pm standard deviation)	Illness duration of dropouts (\pm standard deviation)	Treatment type	Type of dropout	Assessment used	Psychological predictors of dropout
(54) T. Nozaki et al. (2007)	Exploratory/ observational retrospective	DSM-IV AN and EDNOS	n=75; 32.0%	23.4(\pm 7.5)	5.0(\pm 4.6)	Inpatient treatment programme	One sided, split into times	MMPI; EDI; EAT	Social and emotional alienation; lack of ego mastery; anxiety and tension
(51) A. Zeeck et al. (2000)	Exploratory/ observational	DSM-IV and ICD-10 AN	n=133; 18.5% (patient initiated)/ 12.8% (staff initiated)	24.8(\pm 6.8)	N.R.	Inpatient treatment programme	One sided (team or patient); early, middle and late	SCL-90-R; EDI-2; IIP	Maturity fears; obsessive- compulsive behaviours

(52) C. Huas et al. (2011)	Exploratory/	DSM-IV AN	n=601;	AN-R =	AN-R =	Inpatient	One sided,	SCL-90-R;	Higher
	observational		53.3%	25.9(±7.6);	7.4(±7.4);	treatment	split into	EAT-40; EDI;	paranoid
	retrospective			AN-B/P =	AN-B/P =	programme	times	BDI; MRS	scoring; more
				27.0(±7.0)	9.5(±7.3)*				impulsive
									behaviours;
									ineffectiveness
(52) L.J. Surgenor et al. (2004)	Multi-site	DSM-IV AN	n=213;	22.3(±6.6)	N.R.	Inpatient	Treatment	BDI; EAT-26;	Social
	exploratory		20.2%			treatment	ended by	EDI-2; RSE	insecurity;
						programme	patient's		asceticism
						(multi-site)	unilateral		
							decision		
(55) L. Pingani et al. (2012)	Exploratory/	DSM-IV-TR AN, BN	n=186;	28.6(±7.8)	8.7(±5.9)	Inpatient	Patient	SCID; EDI-2;	Difficulties in
	observational	and EDNOS	24.7%			treatment	initiated	BUT; SCL-90	interpersonal
	retrospective					programme			relationships
(34) D.B. Woodside et al. (2004)	Exploratory/	DSM-IV AN	n=166;	27.1(±9.0)*	6.7(±7.6)*	Inpatient	Patient	EDE; EDI;	Maturity fears
	observational		51.0%			treatment	initiated	BDI; RSE; PI;	
	retrospective					programme	before BMI	FAM	
							20		

N.R.: not reported; *: not split into dropouts and completers.

BDI: Beck Depression Inventory; BUT: Body Uneasiness Test; EAT: Eating Attitude Test-40; EDE: Eating Disorder Examination; EDI: Eating Disorder Inventory; EDE-Q: Eating Disorder Questionnaire; FAM: Family assessment measure; MMPI: Minnesota Multiphasic Personality Inventory; MRS: Morgan & Russell Scale; PI: Padua Inventory; RSE: Rosenberg Self-Esteem Scale; SCID: Structured Clinical Interview for Diagnosis for DSM; SCL: Symptoms Checklist; YBOCS: Yale-Brown Obsessive-Compulsive Scale.

Table 2. Outpatient settings descriptives

(Identifier)	Design	Diagnosis/	Sample	Mean age of	Illness	Treatment type	Type of	Assessment	Psychological
Author		diagnoses	with	dropouts (\pm	duration of		dropout	used	predictors of
(Publication			percentage	standard	dropouts (\pm				dropout
year)			dropout	deviation)	standard				
					deviation)				
(66) G.B.A.	Randomised	DSM-IV AN	n=63;	N.R.	19 (\pm N.R.)	CBT-AN or	Did not start	EDE;	EDQoL
Elbaky et al.	control trial	excluding	23.8%			SSCM	treatment;	ANSOCQ;	psychological score
(2014)		criterion D					early; late	EDQoL; HSQ;	
		for 7 years						BDI; WSAS	
(63) W.S.	Multisite	DSM-III-R	n=259; 26%	28.1(\pm 7.9)*	10.2(\pm 7.6)*	CBT	Did not start	SCID; BTQ;	Impulsivity; poorer
Agras et al.	controlled	BN					treatment;	BDI; RSE;	social adjustment
(2000)							patient	MPQ; IIP;	
							initiated	SAS	
(56) Z.	Exploratory/	DSM-IV-TR	n= 61.9%	BN-	BN-	Group CBT	N.R.	EDI-2; SCL-R	Maturity fears
Agüera et al.	observational	BN and BED		P=26.2(\pm 6.9);	P=7.5(\pm 5.7);				
(2013)	prospective			BN-	BN-				
				NP=27.2(\pm 9.1);	NP=7.0(\pm 5.4);				
				BED=34.1(\pm 9.6)	BED=10.6(\pm 8.				
					1)				

(64) T. Björk et al. (2009)	Longitudinal naturalistic	N.R.	n=465; 12.0%	22.4 (±5.85)	6.1(±5.9)	Variety in treatment units	Patient initiated in first 12 months	RAB; EDI-2; SCL-63; SASB	Maturity fears; social insecurity; ineffectiveness; obsessive compulsive behaviours
(58) O. Carter et al. (2012)	Exploratory/ observational retrospective	DSM-IV-TR AN, BN and EDNOS	n=189; 45.0%	25.98(±8.54)*	N.R.	CBT-E	Did not complete treatment	EDE; EDE-Q; DASS; DTA; MINI	Avoidance of affect; anxiety
(59) S. Fassino et al. (2003)	Exploratory/ observational retrospective	DSM-IV BN	n=86; 24.0%	24.90(±5.5)	78.57(±56.10)	IPBP and fluoxetine	Patient sided	EDI-2; STAI; TCI	Impulsive; maturity fears; ineffectiveness
(65) Fernández-Aranda et al. (2009)	Controlled	DSM-IV BN purging subtype	n=62	23.7(±3.6)*	6.0(±4.2)*	IBT or WL	N.R.	EDI; EAT-40; BITE; TCI-R	Anxiety; low reward dependence
(57) E.C. Park et al. (2014)	Exploratory/ observational prospective	ICD-10 BN, AN and EDNOS	n=59; 13.57%	30.3(±8.44)*	9.10(±8.32)*	CBT	Any patient sided dropout	PBQ; EDE-Q	Dependent PD cognitions
(61) Z. Steel	Exploratory/	DSM-III-R	n=32; 43%	23(±5.8)*	5.0(±4.0)*	CBT	Did not	EDI-2; EDI;	External locus of

et al. (2000)	observational retrospective	and DSM-IV BN					complete treatment	BSQ; BDI; BHS; LOC; EDSC	control; ineffectiveness
(67) K.F. Stein et al. (2011)	Randomised control trial	DSM-IV AN, BN and EDNOS	n=62; 41.93%	23.6(±3.3)	N.R.	Psychotherapy	Baseline data; completers; intermittent	SCID; BDI; EDI; EMA; EDE; QEWP; ZCST	Negative schemas
(60) E.D. ter Huurne et al. (2017)	Exploratory from RCT	DSM-IV BN, BED and EDNOS	n=205; 37.5%	38.1(±12.4)	N.R.	Web based CBT	Early versus late	EDQ-O; EDE- Q; BAT; MAPHSS; DASS; RSE; EQ-5D; MATE; PMS; TCU	Difficulties in social functioning
(68) T. Björk et al. (2006)	Naturalistic longitudinal	DSM-IV AN, BN and EDNOS	n=840; 39.52%	25.2(±6.32)	8.6(±6.35)	Day hospital treatment unit	Active non- participators and passive non- participators	RAB; EDI-2; SCL-90	Asceticism; social insecurity
(62) G.A. Tasca et al.	Exploratory/ observational	DSM-IV AN	n=74; 55.4%	28.42(±10.64)*	8.97(±8.04)*	Day hospital programme	Did not complete	ASQ; EDI; IIP; CESDS	Lower preoccupied attachment

(2004)	retrospective					treatment			
(50) K.J.	Exploratory	N.R.	n=261;	26.56(±N.R.)	N.R.	Day hospital	Did not	BDI; BAI;	Impulse regulation;
Peake et al.	/observational		36.40%			programme	complete	SCQ; SAS;	impulsivity
(2005)	retrospective					and CBT	treatment	EDE-Q; EDI-2	
(25) K.A.	Randomised	DSM-IV AN	n=122; 46%	24.8(±6.8)	N.R.	CBT, Fluoxetine	Staying in	SCID; YBOC;	Low self esteem
Halmi et al.	prospective					or combined	treatment	MPQ; BDI;	
(2005)							for less than	EDE; 3-EQ;	
							5 weeks	SEI; YBC ED;	
								RSE	

N.R.: not reported; *: not split into dropouts and completers.

ANSOCQ: Anorexia Nervosa Stages of Change Questionnaire; ASQ: Attachment Styles Questionnaire; BTQ: Background and treatment questionnaire for anorexia and bulimia; BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; BHS: Beck Hopelessness Scale; BAT: Body Attitude Test; BSQ: Body Shape Questionnaire; BITE: Bulimic Investigatory Test Edinburgh; BTQ: Bulimic Thoughts Questionnaire; CESDS: Center for Epidemiological Studies Depression Scale; DASS: Depression Anxiety Stress Scale; EAT: Eating Attitude Test; EDE: Eating Disorder Examination; EDE-Q: Eating Disorder Examination Questionnaire; EDI: Eating Disorder Inventory; EDQOL: Eating Disorder Quality of Life Questionnaire; EDQ-O: Eating Disorder Questionnaire-Online; EDSC: Eating Disorder Symptom Checklist; EMA: Ecological Momentary Assessment; QEWP: Questionnaire on Eating and Weight Patterns-Revised; EQ-5D: EQ-5D Visual Analogue Scale; MPQ: Impulsivity scale of the Multidimensional Personality Questionnaire; IIP: Inventory of Interpersonal Problems; LOC: Locus of Control of Behaviour Scale; MAPHSS: Maudsley Addiction Profile-Health Symptom Scale; MATE: Measurements in the Addictions for Triage and Evaluation; MINI: Mini International Neuropsychiatric Interview; PBQ: Personality Belief Questionnaire – Short Form; PMS: Profile of Mood States – Short Form; RAB: Rating of Anorexia and Bulimia; RSE: Rosenberg Self-Esteem Scale; SCL: Symptoms Checklist-90, SCL-90-R, SCL-63; SEI: Side Effects Inventory; SCQ: Self-Concept Questionnaire; SF-12: Short Form-12 Health Status Questionnaire; SAS: Social Adjustment Scale; STAI: State-Trait Anger Expression Inventory; SASB: Structural Analysis of Social Behaviour; SCID: Structured Clinical Interview for DSM; TCU: Motivation for Treatment; TCI-R: Temperament and Character Inventory; TSS: Treatment satisfaction scale; WSAS: Weissman Social Adjustment Scale; ZCST: Zajonc's card-sorting task; IBPB: Individual Psychology Brief Psychotherapy.

Table 3. Statistical reporting of all included studies

(Identifier) Author (Publication Year)	Psychological Variable	Mean score ± standard deviation	Reported statistic	P value	Effect size
outpatient/inpatient					
(54) T. Nozaki et al. (2007)	Social and emotional alienation	Dropouts 60.0±13.4; Completers 50.1±11.9	$t = -3.10$; (Bonferroni Correction 0.05/8); 95% CI [-16.1, -3.50]	$p < 0.006$	0.39 [^]
Inpatient	Cognitive (lack of ego mastery)	Dropouts 63.7±18.7; Completers 52.9±12.4	$t = -2.53$; 95% CI [-19.6, -2.11]		0.35 [^]
	Conative (lack of ego mastery)	Dropouts 60.6±14.4; completers 51.3±10.7	$t = -2.75$; 95% CI [-16.2, -2.45]		0.87 [^]
	Defect of inhibition and control (lack of ego mastery)	Dropouts 62.8±16.4; completers 49.2±10.8	$t = -3.62$; (Bonferroni Correction 0.05/8); 95% CI [-21.6, -4.88]	$p < 0.006$	0.54 [^]
	Intrapsychic autonomy (lack of ego mastery)	Dropouts 64.8±18.0; completers 51.5±11.2	$t = -3.47$; (Bonferroni Correction 0.05/8); 95% CI [-21.6, -4.88]	$p < 0.006$	0.46 [^]
	Anxiety and tension	Dropouts 63.0±11.6; Completers 53.6±14.4	$t = -2.78$; (Bonferroni Correction – 0.05/11); 95% CI [-16.1, -2.65]	$p < 0.004$	0.36 [^]
(51) A. Zeeck et al.	Maturity fears		$F = 3.91$; d.f. = 1; 107	$p < 0.053$	

(2000)					
Inpatient	Obsessive-compulsive	Early dropouts 1.96±0.65		$p < 0.05$	0.64^
		Late dropouts 1.21±0.53			
(52) C. Huas et al.	Higher paranoid scoring		Associated: ORm = 1.44 [1.01-2.04]		
(2011)					
Inpatient	Impulsive behaviours		Suicide attempts ORa = 1.35; CI [0.82, 2.20]	$p = 0.002$	
			Drug use ORa = 1.35; CI [0.93, 1.96]	$p = 0.0620$	
	Ineffectiveness		ORa = 0.96		
(53) L.J. Surgenor et al. (2004)	Social insecurity	Dropout 11.4±4.7	$X^2 = 1.7$	$p = 0.08$	0.20^
		Completers 9.1±5.3			
	Asceticism	Dropout 10.5±6.3	$X^2 = 1.6;$	$p = 0.11$	0.19^
		Completers 8.2±5.7			
(55) L. Pingani et al. (2012)	Poorer relationship with mother		$X^2 = 4.2; d.f. = 1;$	$p < 0.05$	
	Fewer friends and a more limited social life		$X^2 = 8.5; d.f. = 2$	$p < 0.05$	
(34) D.B. Woodside et al. (2004)	Higher maturity fears		Hazard ratio = 1.05; 95% CI [1.00, 1.11]	$p < 0.04$	

Inpatient					
(66) G.B.A. Elbaky et al. (2014)	EDQol psychological score	X ² = 2.53; df=61		p = 0.007	
Outpatient					
(63) W.S. Agras et al. (2000)	Impulsivity	Dropouts 12.0±6.6	-0.53		
		Completers 15.5±6.3			
	Outpatient				
	Poorer social adjustment	Dropouts 2.4±0.5	0.45		
	Completers 2.1±0.5				
(56) Z. Agüera et al. (2013)	Maturity fears	BN-NP dropouts	p = 0.045		0.44^
		11.83±5.49			
	Outpatient	Completers 7.28±4.82			
(64) T. Björk et al. (2009)	Maturity fears		Dropout	Moderate	
			changes from		
			T1 to T5		
	Outpatient		p = 0.009		
		Impulse regulation		Dropout	Moderate
			changes from		
			T1 to T5		
			p = 0.02		

	Ineffectiveness			Dropout changes from T1 to T5 $p = 0.02$	Moderate
	Obsessive-compulsive behaviours			Admission to follow-up $p = 0.023$	$d = 0.54$
	Social insecurity			Admission to follow-up $p =$ 0.034	$d = 0.51$
(58) O. Carter et al. (2012) Outpatient	Avoidance of affect		$B = 0.549$; SE 0.252; OR = 1.732 95% CI [1.057, 2.836]	$p = 0.029$	
	Anxiety		χ^2 (df=3) = 19.59	$p < 0.01$	
(59) S. Fassino et al. (2003) Outpatient	Impulsive	Baseline dropouts 9.50±6.61 Completers 6.20±5.02	$t = -2.54$	$p = 0.001$	0.28^
	Maturity fears	Baseline dropouts 7.96±6.89	$t = -2.10$	$p = 0.039$	1.17^

		Completers 5.32±4.49			
	Ineffectiveness	Baseline dropouts 11.85±8.41 Completers 8.56±6.00	$t = -2.06$	$p = 0.043$	1.42 [^]
(65) Fernández- Aranda et al. (2009)	More anxious		OR = 4.26; 95% CI [1.03, 17.65]	$p = 0.021$	
Outpatient	Low reward dependence		OR = 0.72; 95% CI [0.51, 1.01]	$p = 0.026$	
(57) E.C. Park et al. (2014)	Dependent PD cognitions	Dropouts 12.0±7.05 Completers 6.74±4.89	$t = 3.03$	$p = 0.004$	1.57 [^]
Outpatient					
(61) Z. Steel et al. (2000)	External locus of control	Dropouts 40.5±5.5 Completers 29.9±9.5	$t(23) = 3.2$	$p = 0.004$	0.71 [^]
Outpatient					
	Ineffectiveness	Dropouts 14.7±7.2 Completers 9.5±5.9	$t(31) = 2.2$	$p = 0.034$	0.40 [^]
(67) K.F. Stein et al. (2011)	Negative schemas		Dropouts OR = 1.31; CI [0.76, 2.27] Completers OR = 1.75, CI [0.94, 3.24]		
Outpatient	Positive self-schemas		OR = 1.01, CI [0.67, 1.52]		
(60) E.D. ter Huurne et al. (2017)	Difficulties in social functioning	Dropouts 7.8±4.9 Completers 6.0±4.4	Baseline for early dropouts: Nagelkerke R ² = 0.15	$p = 0.007$	0.19 [^]

Outpatient		$t = 2.71$	
(68) T. Björk et al.	Asceticism	Baseline $t(787) = 2.66$	$p = 0.01$
(2006)			
Outpatient	Social insecurity	Non-significant tendency for lower social insecurity (not reported)	
(62) G.A. Tasca et al.	Lower preoccupied	$B = 3.82$; $SE = 1.41$; $Wald = 7.29$; $p = 0.007$; $OR =$	
(2004)	attachment	45.44; 95% CI [2.85, 725.13]; $R = 0.30$	
Outpatient			
(50) K.J. Peake et al.	Impulse regulation	Predicted - $Wald = 5.1$	$p = 0.024$
(2005)			
Outpatient	Impulsivity	Associated – 8.98 compared to 6.37	$p = 0.024$
(25) K.A. Halmi et al.	Low self-esteem	Low self-esteem = 40% completion rate	
(2005)		High self-esteem = 86% completion rate	
Outpatient			

^: effect size manually calculated by researcher (LS) from available statistics; CI: 95% confidence intervals; BN-NP: bulimia nervosa non-purging subtype

Findings for psychological predictors

Psychodynamic predictors

Four studies examined ineffectiveness; with three outpatient studies (59; 61; 64) and one inpatient study (52) reporting higher levels of ineffectiveness significantly predicted dropout. Ineffectiveness as measured by the EDI assesses feelings of general inadequacy, insecurity, worthlessness and the feeling of not being in control of one's life (69), as well as including a negative self-evaluation component (70).

Two studies examined asceticism; with one outpatient study reporting significantly lower asceticism at baseline (68), and one inpatient study reporting a non-significant result for those who disengaged (53). Asceticism has been defined as the denial of satisfaction and strict starvation in order to achieve a higher level of moral being (71).

Emotion dysregulation and personality predictors

Four studies examined impulsivity; with three outpatient studies finding that participants who withdrew were significantly more impulsive (63); experienced significantly more difficulties with impulse regulation (50) as well as showed a significant decrease in impulse

regulation (59). One inpatient study reported significantly more impulsive behaviours, such as alcohol use and suicide attempts, specifically in early dropouts (52).

One outpatient study reported increased avoidance of affect, an attempt to avoid engaging and displaying thoughts, feelings and emotions, significantly predicted treatment withdrawal (58).

One outpatient study reported significantly elevated levels of external locus of control as a pre-treatment characteristic (61), which is where an individual believes that events are controlled by external factors which are out of their control, for example, fate or luck.

Another outpatient study also reported higher levels of dependent personality disorder (PD) cognitions (57) were significantly associated with withdrawal. However, inpatient studies differed, with one reporting that it was higher paranoid thinking which was significantly associated with dropout (52) as well as another inpatient student reporting a lack of ego mastery to significantly predict withdrawal (54).

Three studies examined anxiety with more reported anxiety significantly associated with dropout for outpatients (65) and inpatients (54), particularly an increase in anxiety at baseline for outpatients who went on to drop out (58).

Two further studies examined obsessive compulsive behaviours (n=2) and reported significant withdrawal with higher obsessive compulsive behaviours in outpatients (64), with particular significant differences between early (first 6 weeks) and late dropout (after reaching target weight) for an inpatient sample (51).

Developmental predictors

Five studies examined maturity fears; with significant findings found in two outpatient studies (69; 59) and one inpatient study (34). However contradictory findings were reported in two studies where no significant difference was found between outpatient completers and dropouts at baseline (64) as well as a higher non-significant trend for inpatient participants (51), regardless of whether the dropout was patient or staff initiated. Maturity fears are described as measuring one's wish to retreat to the security of the preadolescent years because of overwhelming demands of adulthood (69).

Six studies examined interpersonal factors relating to dropout. Poorer social adjustment was found to significantly predict dropout (63), with dropouts displaying higher levels of social insecurity (64) in outpatient settings. More difficulties in social functioning was a significant predictor of outpatient early withdrawal (60) and difficulties

for inpatients' interpersonal relationships (55), such as poorer relationships with their mothers and fewer friends and a more limited social life, as well as social and emotional alienation for inpatients (54). Conversely, one study found non-significant findings for levels of social insecurity for inpatients (53) and outpatients at baseline (68).

One study examined attachment style, reported significantly lower preoccupied attachment style in outpatient withdrawal (62), with completers showing significantly higher scores. A preoccupied attachment is described as having higher attachment anxiety when caregivers are inconsistent, leading to an expressive of negative emotions (62).

Other predictors

One outpatient study reported participants who disengaged to have a one standard deviation increase in negative schemas between one and six month follow up, which was related to a 75% odd of dropping out of treatment (67). It was also found that dropouts had no increase in positive self-schemas with available follow up data. This could be seen as being supported by another outpatient study, which reported self-esteem as higher in completers than withdrawers, with 86% (18 of 21 patients) of those with high self-esteem completing treatment compared to only 40% (27 of 86 patients) of those with low self-esteem completing

treatment (25).

One further outpatient study reported ED quality of life psychological score to be related to outpatient withdrawal, though this was not confirmed in a stepwise regression (66). The EDQoL focuses on domains such as school/work, leisure, values and beliefs as well as cognitions, physical and psychological health and eating.

Methodological issues with included studies

Overall methodological quality of included studies was rated as poor using the Cochrane Risk of Bias tool. Between the two raters, it was agreed that sixteen of the twenty-one included studies did not use any adjustment in their statistics when employing multiple comparisons (25; 51-53; 55; 57; 58; 60-2; 64; 65-68), therefore increasing the likelihood of type I and II error. All studies included attrition statistics, although five studies did not operationalise and provide a coherent definition for dropout (50; 56; 57; 63; 65; 57) and some measures were not included in analysis if participants dropped out before the first session (58), with one study not reporting data for the entire withdrawal sample without reasoning (63). Confounding bias was seen in ten studies which did not control or assess for any co-morbidities (51; 54-56; 58; 60; 61; 64; 65; 68). Fifteen did not report age or illness duration for dropouts (25; 34; 50-53;

57; 58; 60-63; 65-67). Two studies did not control for pharmacotherapy (56; 64) with one sample also receiving antidepressants alongside psychological intervention (59). Selection bias was low across the studies, though one did not state whether participants were ICD or DSM diagnosed (50) and one study did not specific inclusion or exclusion criteria (64).

DISCUSSION

The aim of this review was to systematically identify the evidence for psychological predictors of treatment dropout for individuals diagnosed with an ED, assessing any different predictors between inpatient or outpatient dropouts.

Findings

There were three main themes emerging from the studies identified in the review. Firstly, levels of dropout in ED were significant, with this review finding up to 61.9% attrition in outpatients, and highlight the inconsistencies defining dropout in ED, all warranting further consideration. Secondly, there were no consistent psychological

predictors of dropout from treatment for individuals diagnosed with an ED, with several variables contributing across all diagnoses including; five studies finding a significant association for interpersonal difficulties and one study not meeting significance; four studies finding significant associations for impulsivity; three studies finding a significant association for maturity fears with two studies finding a non-significant association; four significant findings reporting ineffectiveness is associated with dropout; three significant findings for anxiety; two significant findings for obsessive-compulsive behaviours; and one study finding a significant association and one finding a non-significant association for asceticism. Also, significant findings were reported by one study each for external locus of control; attachment; avoidance of affect; dependent PD cognitions; lack of ego mastery; higher paranoid thinking, negative schemas, self-esteem and ED psychological quality of life score. Finally, there were no significant differences between psychological predictors of dropout for inpatient and outpatient care. However, there was some evidence for developmentally oriented predictors of dropout.

This study's findings are supported by Abbate-Daga and colleagues (72), who argue that defence mechanisms in ED protect patients from negative feelings, such as loss of control, maturity fears and ambivalence. However, these feelings are directly activated by

therapy, such as losing control over eating behaviours, which may explain why individuals drop out, to regain a sense of control. They argue that these defence mechanisms can become re-activated more intensely when asked to both face significant changes and negative affect. Considering the predictor of external locus of control predicting dropout with one study reporting a large effect size, it may be that this would lead individuals to feel more ineffective, thus using impulsivity as a form of avoidance, and dropping out of treatment. This is supported by evidence from the current review, whereby eight studies (4 for each factor) reported ineffectiveness and impulsivity as separate predictors of treatment dropout for ED, with medium to very large effect sizes for ineffectiveness and small to medium effect sizes for impulsivity. However, this needs to be taken with caution as the study did not control for depression, which also is correlated with external locus of control (73). The finding of ineffectiveness has also been described as the feeling of not being in control of one's life, with some attempts to operationalise in terms of locus of control (74; 75). This is heightened by lack of desire to improve and resistance to the distress caused by engaging in treatment being central to ED. Whether conscious or unconscious, denial of illness was even included in the DSM-IV-TR diagnostic criteria (43). This is supported by a qualitative review by Espindola and Blay (76), stating that patients often describe their ED as a means of avoiding negative affect and being in control, which this

review found one study reporting as a predictor of dropout, though effect size was not reported and could not be calculated.

Gothelf and colleagues (77) argue that this denial, or lack of insight, serves to maintain ED, as well as the combination of mature and immature defence mechanisms. Other maintenance factors are cited as intra and interpersonal factors (78), such as the findings of difficulty in social functioning predicting dropout, with five studies reporting a significant association of interpersonal factors with dropout with a medium to very large effect size and one study finding a non-significant association. The current review supports this observation, with attachment (one significant finding, though effect size not reported), social alienation and insecurity emerging as potential predictors of treatment dropout. This parallels findings by Treasure and colleagues (2), who analysed the interpersonal maintaining factors of ED and found that over protection, treatments and isolation could be iatrogenic factors. Given that personality traits make therapeutic alliance difficult (72), as found with higher levels of PD cognitions predicting treatment dropout in one study with a very large effect size, it can be understood how the interpersonal variables interact to potentially enhance the illness as well as the patient's relational isolation, leading to treatment disengagement. This is particularly the case given that EDs have been described as a way for individuals to feel safe, avoid threatening emotions, communicate

with others and feel strong, special and in control (76), linking parallels to levels of asceticism linked to their psychopathology (79) and viewing themselves as martyred (36). However, this needs further research as this review found one significant and one non-significant study predicting treatment dropout for asceticism with small effect sizes.

Definitions of dropout

The definitions of dropout in this review were heterogeneous, highlighting that dropout is a crude dichotomous term, whilst engagement with services can be construed as a process variable which is amenable to measurement (27; 80). Engagement is a dynamic, multifactorial process which incorporates acceptance of treatment, development of a therapeutic rapport and alliance, mutual acceptance and collaboration (27). By recording dropout dichotomously, this stops us from understanding the complex process of engagement. For instance, ED services have been criticised by patients for focusing too much on weight and food and not the underlying processes behind the ED (32). Part of engagement is building a trusting relationship, with openness about difficulties (27), something which ED patients notoriously have difficulty disclosing. Higher interpersonal distrust, or difficulty creating an initial therapeutic rapport, has been reported to cause lower chance of

reliable change (10), which is supported by this reviews finding of interpersonal difficulties resulting in dropout. Findings that early exit, or attending assessment but not engaging in treatment (81), provide provisional support for increased interpersonal distrust in the assessment session which may then lead to disengagement. It appears logical that if a service is focusing more on weight and food than underlying psychological causes, then an ED patient would feel a lack of genuine concern, synchrony, support and control over their care, which Zaitsoff and colleagues (82) argue are essential for successful engagement from their qualitative study with adolescents. It may therefore be helpful to view dropout as a process of disengagement, which might predict someone who is in the contemplation stage from continuing treatment versus disengagement. This may require a more precise measurement tool, or incorporation of session by session measures.

Limitations

With regards to limitations, due to poor study quality and varying sample sizes generalisability cannot be inferred. Bias in cohort was present with one study not stating their exclusion and inclusion criteria, as well as not stating whether their participants were DSM or ICD

diagnosed and many did not control for comorbidities such as depression or anxiety which impact significantly upon intra and interpersonal functioning. As well as this, statistical analysis for many of the studies provided a significant risk of bias. As many of the studies were exploratory, many conducted multiple tests without any adjustment for multiple comparisons. Many of the studies with larger sample sizes were also exploratory, often using data from previously conducted studies, so it is possible that some variables showed a significant relationship, however, without being substantiated by psychological theory, caution is employed as to the predictive value these constructs truly have. Nonetheless, these studies may in fact be more representative of treatment in normal clinical settings for individuals with ED (24). It has also been argued that in exploratory studies adjustments for multiple testing might not be required and are often not feasible (83). Therefore, it could be argued that statistically significant results should be thought of as hypothesis generating, regardless of whether adjustments for multiple testing have been performed.

The notable variation in terminology and lack of definition for several variables limited the consistency and homogeneity of the variables being measured. Therefore, to be relatively inclusive this review used a broad definition of psychological variables, taking into

account those variables which are consistent with psychological constructs. For instance, impulsivity can be described as a psychological and a personality variable, however impulsivity is cited in ED literature for binge/purge subtypes (84) and thus was included.

Future research and clinical implications

As NHS trusts are moving more towards commissioning and pressures on waitlists and beds are at an all-time high, it is becoming more vital to examine what causes dropout in ED. It appears essential for shared and consistent definitions of dropout and outcome to be created and applied for future research and treatment, with criteria for the duration of illness and the number of failed treatments also being non-existent (85). Bardone-Cone and colleagues (86) propose defining full recovery as no longer meeting criteria for an eating disorder; abstinence from bingeing, purging and fasting for three months; body mass index of 18.5; and EDE or EDE-Q subscale scores all within one standard deviation of healthy, age-matched population norms (87). This approach not only has a trans-diagnostic application (87), allowing patients to naturally change diagnosis as they move towards recovery and experience relapse, but it has also been reported as being robust and the most consistent across diagnoses (88).

The review's findings regarding difficulties in interpersonal functioning as predictive of treatment dropout have clear clinical implications. Arcelus and colleagues (89) stated in their systematic review that the important role of interpersonal problems in psychiatric disorders such as ED is proven by some success from treatments such as interpersonal psychotherapy (IPT), which focuses on maladaptive interactional patterns. Nonetheless, current National Institute for Health and Care Excellence guidelines for ED would appear to argue against this focus, recently changing their guidelines to highlight CBT as the primary focus of treatment across all ED diagnoses (90). This is interesting given that this review would appear to suggest that interventions such as IPT could target underpinning factors associated with treatment disengagement and thus further high quality research is required, particularly into IPT for ED, considering concerns surrounding how robust its current evidence base is. The fact that there was no significant variable in relation to one type of ED diagnosis also lends support for a more trans-diagnostic model of describing ED. Further research into specific ED symptoms in relation to predictors of engagement as active processes within treatment rather than binary or static outcomes would assess this finding.

Conclusion

This review has highlighted the importance of researching treatment dropout in ED, with discussion around the crude measurements of dropout seen for ED and how future research should focus explicitly on this in order to contribute to more generalisable findings. An important issue regarding treatment dropout is that there is a large group of individuals diagnosed with an ED who are not getting treatment, which is a significant issue and contributes towards chronicity.

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Systematic review appendices

Appendix 1a. Data extraction form

Data collection form

Intervention review – RCTs and non-RCTs

Review title or ID

General Information

1. Date form completed (dd/mm/yyyy)	
2. Report title <i>(title of paper/ abstract/ report that data are extracted from)</i>	
3. Report ID <i>(if there are multiple reports of this study)</i>	
4. Publication type <i>(e.g. full report, abstract, letter)</i>	
5. Study funding source <i>(including role of funders)</i>	
Possible conflicts of interest <i>(for study authors)</i>	
6. Notes:	

Eligibility

Study Characteristics	Review Inclusion Criteria <i>(Insert inclusion criteria for each characteristic as defined in the Protocol)</i>	Yes/ No / Unclear	Location in text <i>(pg & ¶/fig/table)</i>
Type of study		...	
7. Participants		...	
8. Types of intervention		...	
9. Types of outcome measures		...	
10. Decision: ...			
11. Reason for exclusion			
12. Notes:			

DO NOT PROCEED IF STUDY EXCLUDED FROM REVIEW

Population and setting

	Description <i>Include comparative information for each group (i.e. intervention and controls) if available</i>	Location in text <i>(pg & ¶/fig/table)</i>
13. Population description <i>(from which study participants are drawn)</i>		
14. Setting <i>(including location and social context)</i>		
15. Inclusion criteria		
16. Exclusion criteria		
17. Method/s of recruitment of participants		
18. Notes :		

Methods

	Descriptions as stated in report/paper	Location in text <i>(pg & ¶/fig/table)</i>
19. Aim of study		
20. Design <i>(e.g. parallel, crossover, non-RCT)</i>		
21. Start date		

22. End date		
23. Duration of participation <i>(from recruitment to last follow-up)</i>		
24. Notes:		

Participants

Provide overall data and, if available, comparative data for each intervention or comparison group.

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
25. Sample size		
26. Age (mean and SD)		
27. Sex		
28. Race/Ethnicity		
29. Co-morbidities		
30. Other treatment received <i>(additional to study intervention)</i>		
31. Other relevant sociodemographics		
32. Notes:		

Applicability

33. Does the study directly address the review question? <i>(any issues of partial or indirect applicability)</i>	... <i>Yes/No/Unclear</i>	
34. Notes:		

Other information

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
35. Key conclusions of study authors		
36. References to other relevant studies		
37. Correspondence required for further study information (what and from whom)		
38. Further study information requested (from whom, what and when)		
39. Correspondence received (from whom, what and when)		
40. Notes:		

Quality Criteria Table (Cochrane Risk of Bias tool)

Domain	Description	Risk of bias
Selection of participants	Selection bias caused by inadequate selection of participants	Low/high/unclear
Confounding variables	Selection bias caused by inadequate	Low/high/unclear

	confirmation and consideration of confounding variable	
Intervention (exposure) measurement	Performance bias caused by inadequate measurement of intervention (exposure)	Low/high/unclear
Blinding of outcome assessment	Detection bias caused by inadequate blinding of outcome assessment	Low/high/unclear
Incomplete outcome data	Attrition bias caused by inadequate handling of incomplete outcome data	Low/high/unclear
Selective outcome reporting	Reporting bias caused by selective outcome reporting	Low/high/unclear

Appendix 1b. Risk of bias for included studies

	Selection of participants	Confounding variables	Intervention (exposure) measurement	Blinding of outcome measurement	Incomplete outcome data	Selective outcome reporting
	Selection bias caused by inadequate selection of participants	Selection bias caused by inadequate confirmation and consideration of confounding variable	Performance bias caused by inadequate measurement of intervention (exposure)	Detection bias caused by inadequate blinding of outcome assessment	Attrition bias caused by inadequate handling of incomplete outcome data	Reporting bias caused by selective outcome reporting
1) Pre-treatment predictors of attrition in a randomised controlled trial of psychological therapy for severe and enduring anorexia nervosa	Low	Low	Low	High	Low	High
2) Outcome predictors for the cognitive behaviour treatment of bulimia nervosa- data from a multisite study	Low	Low	Low	Low	Low	Low
3) Cognitive behaviour therapy response and dropout rate across	Low	High	Low	Low	Unclear	Low

purging and non-purging bulimia nervosa and binge eating disorder- DSM-5 implications						
4) What Happened to the Ones Who Dropped Out- Outcome in Eating Disorder Patients Who Complete or Prematurely Terminate Treatment	Low	High	High	High	Low	High
5) Increased wait-list time predicts dropout from outpatient enhanced cognitive behaviour therapy (CBT-E) for eating disorders	Low	Unclear	High	Low	High	High
6) Dropout from brief psychotherapy within a combination treatment in bulimia nervosa: role of personality and anger	Low	Low	High	Low	Low	Low
8) Internet-Based Cognitive-Behavioural Therapy for Bulimia Nervosa- A Controlled Study	Low	High	Low	Low	High	High
10) Psychopathological features of anorectic patients who	Low	Unclear	Unclear	Low	Low	Low

dropped out of inpatient treatment as assessed by the Minnesota multiphasic personality inventory						
11) Early Improvement in Eating Attitudes during Cognitive Behavioural Therapy for Eating Disorders- The Impact of Personality Disorder Cognitions	Low	Low	Low	Low	High	High
12) Why the high rate of dropout from individualized cognitive-behaviour therapy for bulimia nervosa?	Low	High	Low	Low	Low	High
13) An Eating Disorder Randomized Clinical Trial and Attrition- Profiles and Determinants of Dropout	Low	Low	Low	High	Low	High
14) Treatment dropout in web-based cognitive behavioural therapy for patients with eating disorders	Low	High	Low	High	Low	High
16) Drop outs from in-patient treatment of anorexia nervosa	Low	High	Low	Low	Low	High

17) Predictors of dropout from inpatient treatment for anorexia nervosa- Data from a large French sample	Low	Low	Low	Low	Low	High
18) Reasons for non-participation in follow-up research on eating disorders	Low	High	Low	Low	Low	High
19) Drop-out from inpatient treatment for Anorexia Nervosa- Can risk factors be identified at point of admission	Low	Low	Low	Low	Low	High
20) Attachment Predicts Treatment Completion in an Eating Disorders Partial Hospital Program Among Women With Anorexia Nervosa	Low	Low	Low	Low	Low	High
21) Gone, but not forgotten- An examination of the factors associated with dropping out from treatment of eating disorders	High	Low	Low	Low	Low	Low
22) Predictors of dropout from inpatient treatment of eating	Low	High	Low	Low	Low	High

disorders- An Italian experience						
23) Predictors of Premature Termination of Inpatient Treatment for Anorexia Nervosa	Low	Low	Low	Low	Low	High
24) Predictors of Treatment Acceptance and Completion in Anorexia Nervosa- Implications for Future Study Designs	Low	Low	High	High	Low	High

2) Reflective functioning and attachment in adolescent eating disorders

Laurie Siddell^{*ab} Fiona Duffy^{ab} and Angus MacBeth^b

^aNHS Lothian CAMHS, The Royal Edinburgh Hospital, Edinburgh

^bThe School of Health in Social Science, University of Edinburgh

*Corresponding author email address: lauriesiddell@hotmail.com

Address: University of Edinburgh/NHS Scotland Clinical Psychology

Training Programme, School of Health in Social Science, The University of
Edinburgh, Medical School (Doorway 6), Teviot Place, Edinburgh, EH8 9AG

Telephone: 0131 651 3973

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See Research Portfolio Appendix 3c – Author's Guidelines, p 213.

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Abstract

Background: Recent literature indicates that individuals with eating disorders have insecure attachment styles and poor reflective functioning, though it is unsure whether this is causal or consequential. The aim was to evaluate the strength of developmentally-informed psychological mechanisms (reflective functioning and attachment) on trans-diagnostic eating disordered symptomology.

Methods: Adolescents with eating disorders (n=14) and controls (n=18) completed questionnaires on their eating behaviour, emotion regulation, reflective functioning and interviewed using the Adult Attachment Projective.

Results: Adolescents with eating disorders had significantly more difficulties with emotion regulation and reflective functioning and more insecure attachment style. No significant association was found between attachment and reflective functioning and percentage of ideal weight for height or binge/purge behaviour.

Discussion: The results support the use of early intervention person-centred therapies, suggesting even when acutely starved adolescents can engage in psychological therapy. Specifically, therapies targeting reflective functioning and deliberate insecure attachment styles may be considered clinically.

Keywords: eating disorders; attachment; reflective functioning; mentalization

Introduction

Adults diagnosed with eating disorders (ED) often present with insecure attachment styles and mentalization difficulties (Jewell, Collyer, Gardner, Tchanturia, Simic *et al.*, 2015). It is proposed that ED may develop as a maladaptive means of coping with such deficits, converting internal struggles into external symptomology (Ravitz, Maunder, Hunter, Sthankiya & Lancee, 2010). However, adolescence is not only the peak age of onset of eating disorders (Volpe, Tortorella, Manchia, Monteleone, Albert *et al.*, 2016) but is also a critical stage in the development of mentalizing (Blakemore, 2008, Jewell *et al.*, 2015), with attachment representations and mentalizing capacity in a state of flux (Jewell *et al.*, 2015; Bleiberg, 2013). There is limited research however into adolescent ED and attachment and mentalization. Therefore, it is important to establish whether the development of mentalizing links to developmental psychological mechanisms in the aetiology and maintenance of ED.

Attachment

Infants are biologically predisposed to seek protection, safety and comfort by forming attachment relationships (O'Shaughnessy & Dallos, 2009). Secure attachment is essential for the development of a healthy and autonomous adult personality (Bowlby, 1988), and being

able to comfort the self or others in times of distress, something insecurely attached individuals struggle with. Attachment insecurity is thus a major contributor to mental disorders (Mikulincer & Shaver, 2012). Early disruptions in attachment experience have implications for biopsychosocial development, including deficits in emotional expression and regulation, disruptions in self-agency, social cognition deficits and poorly established mentalizing capacities (Kelton-Locke, 2016).

It has been argued that working clinically within an attachment framework might result in better understanding of symptoms and improved treatment outcomes (Illing, Tasca, Balfour & Bissada, 2010), however application to ED is limited. Research indicates those with ED to have greater attachment insecurity than non-clinical samples (Caglar-Nazali, Corfield, Cardi, Ambwani, Leppanen *et al.*, 2014; Kuipers & Bekker, 2012), particularly for anorexia nervosa (AN; Gander, Sevecke & Bucheim, 2015). However, there is insufficient evidence to draw conclusions on causative mechanisms behind this (Zachrisson & Skårderud, 2010) and the majority of research has used small sample sizes and self-report data (Gander *et al.*, 2015). Nonetheless, the researchers argue that these findings are particularly important for adolescents, with considerable evidence for higher prevalence of an unresolved attachment status in adolescent samples (Ringer & Crittenden, 2007). Tasca and Balfour (2014) argue that attachment insecurity is not related to a specific ED diagnosis, but

may be related to severity of ED symptoms across diagnostic groups, mediated by perfectionism and affect regulation strategies. Similarly, O'Shaughnessy and Dallos (2009), who reported conflicting evidence in associations between attachment style and ED subgroup, suggest severity matters more than ED subtype.

Mentalization and reflective functioning

Mentalization refers to the process by which internal working models inform how individuals interact with the world, see themselves and others and regulate affect (Tasca & Balfour, 2014). It is positively associated with attachment security (Fonagy, Target, Steele & Steele, 1998), and considered to be partly predetermined and acquired in a transactional process between individual and attachment figures (Bateman & Fonagy, 2012). Mentalization encompasses the explicit effort to tease out mental states underlying behaviour (Kuipers, van Loenhout, van der Ark & Bekker, 2016). During distress, an individual's capacity to mentalize is reduced (Fonagy, Gergely & Jurist, 2004), with over and under-regulation of emotions hindering mentalizing (Kuipers *et al.*, 2016). Preliminary research has found that adults with ED have shown impairments in their mentalizing capacities (Skårderud, 2007; Tchanturia, Happé, Godley, Treasure, Bara-Carril *et al.*, 2004).

While attachment and mentalization are distinct, there are areas of theoretical and empirical overlap (Jewell *et al.*, 2015), with their relationship partly mediated by the capacity to recognise and to regulate emotions (Kuipers *et al.*, 2016). Reflective functioning (RF) is used as a measurement of mentalization in the context of attachment relationships (Jewell *et al.*, 2015). Fonagy, Luyten, Moulton-Perkins, Lee, Warren and colleagues (2016) further separate RF into two separate constructs, with high scores on both reporting impairments in RF. Hypermentalizing refers to a tendency to develop excessively detailed models of the mind of oneself and others that go far beyond the available evidence (Badoud, Luyten, Fonseca-Pedrero, Eliez, Fonagy *et al.*, 2015). Hypomentalizing reflects concrete thinking characterised by an absence or unwillingness to develop more complex models of the mind of others and/or the self (Badoud *et al.*, 2015).

Low levels of RF have been found in ED patients and in those with purging AN compared to controls (Fonagy & Target, 1996; Rothschild-Yakar, Levy-Shiff, Fridman-Balaban, Gur & Stein, 2010; Ward, Ramsay, Turnbull, Steele, Steele *et al.*, 2001). No difference in RF scores has been reported between women with bulimia nervosa (BN) and healthy controls (Pedersen, Lunn, Katznelson & Poulsen, 2012). Pederson, Poulsen and Lunn (2015) report that those with BN are relatively skilled at reflecting on their own and others' thoughts and emotions, though this highly developed capacity for

mentalization does not help them regulate their emotions. This is of interest, given that emotion regulation is argued as determining the ability of RF, but it is not usually addressed (Fonagy & Target, 1997). It therefore seems crucial to take emotion regulation into account as a potential confounding variable when researching RF. Recent research reported that lower levels of ED symptoms were predicted by higher levels of RF, and higher RF indirectly predicted lower ED symptoms through reduced distress levels (Rothschild-Yakar, Waniel & Stein, 2013). RF may therefore serve as a protective factor in reducing ED symptoms.

RF is reported as requiring a higher level cognitive capacity (Fonagy & Target, 1997), also described as executive functioning, a set of neuropsychological processes that govern higher-level, goal-directed behaviour (Juarascio, Manasse, Goldstein, Forman & Butryn, 2015). People with AN show more difficulties in neuro-cognitive tasks, whereas those with BN and in recovery show more variation (Lopez, Tchanturia, Stahl & Treasure, 2008). The researchers postulate that poor nutrition could account for poor performance, suggesting that those acutely starved or with a low body weight cannot engage cognitively in therapy (Chan, Ahn, Bates, Busemeyer, Guillaume *et al.*, 2014; Weider, Indredavik, Lydersen & Hestad, 2014). This potentially proposes that impairments in mentalization and RF may also be impacted upon by starvation, particularly as impaired signalling, interpretation and regulation of emotions have been

posited as neurocognitive impairments in ED (Treasure & Schmidt, 2013). Meta-analyses provide strong evidence for deficits in set shifting (the ability to switch from one mental state to another; Wu, 2014) and central coherence (being able to take in the bigger picture; Lopez, Tchanturia, Stahl & Treasure, 2009) in ED. Consequently, individuals may show difficulties in cognitive or behavioural inflexibility, such as difficulties managing dynamic social interactions (Pender, Gilbert & Serpell, 2014), or considering the RF literature, being unable to switch from one mental state to another. However, this has not been supported by the literature and would be of interest to examine further.

Eating Disorders trans-diagnostic criteria

Although much research focuses on diagnoses, attachment and RF seem to have a bigger impact on ED symptom severity. Martinez and Craighead (2015) argue that clinical observation and research demonstrate that ED pathologies have substantial similarities, including disordered behaviours (Goss & Allan, 2014) and cognitions (Vann, Strodl & Anderson, 2014), as well as common risk (Hilbert, Pike, Goldschmidt, Wilfley, Fairburn *et al.*, 2014) and maintaining factors (Stice, 2002). Focusing on symptom severity is not novel, particularly as services report a high prevalence of presentations of symptoms which do not neatly fit into the diagnostic criteria for AN

and BN, but still significantly impair levels of functioning (Fairburn & Bohn, 2005). However, these groups are largely ignored by researchers (Fairburn & Bohn, 2005), even though common mechanisms have been identified in the persistence of BN, AN and atypical ED (Fairburn, Cooper & Shafran, 2003). Therefore a focus on behaviours and symptoms, instead of diagnosis, constitutes a significant gap in the literature which could greatly benefit treatment and interventions for ED. This is particularly relevant given the observation that subgroups of ED patients differing in symptom profile, attachment classification and RF abilities might require needs matching of treatment (Jewell *et al.*, 2015; Tasca & Balfour, 2014; Kuipers & Bekker, 2012).

Rationale and aim of research study

Further clinically relevant research investigating psychological factors underpinning trans-diagnostic symptoms rather than diagnoses, may be more relevant to clinical practice. Therefore, this study aimed to understand how RF and attachment relate to ED symptomology. It was hypothesised that attachment and RF abilities for adolescents diagnosed with ED will differ compared to non-clinical controls; even after controlling for emotion regulation. Secondly, it was hypothesised that percentage of ideal body weight for height (IBW) will affect RF and attachment abilities. Finally, it was hypothesised

that there would be differences in attachment and RF for binge/purge participants compared to controls.

Method

Participants

Fourteen females aged between 12 and 18 years who were receiving treatment (inpatient, day patient or outpatient) from CAMHS within three Scottish NHS boards, with a *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) diagnosed ED, took part in the study between January 2016 and March 2017. Eligibility was confirmed by the multidisciplinary team and health care professionals working with the patients. As the study aim was to examine symptom severity rather than diagnosis, diagnoses were not formally assessed. Patients who were not literate in English, with current substance misuse, or diagnosis of a psychotic disorder, learning disability or pervasive developmental disorder were excluded from the study. The non-clinical sample (n=18) were recruited using volunteer sampling from local secondary schools within Lothian (one male, seventeen females) during the same period. The researcher emailed local secondary schools who then approached all pupils regarding the study if eligible. If interested, the pupil gave the teacher their name and school year and meetings were arranged for the researcher to come in to discuss the study in more detail. All participants gave informed consent for the anonymised use of their data.

Procedures

The researcher attended CAMHS team meetings throughout the recruitment period within several settings (inpatient units, day hospitals, community services) to explain the research study and disseminate information sheets. As parental consent was not sought, health care professionals who believed the patient to be eligible and had capacity to consent discussed the research with them. If interested, the patient signed an agreement for the researcher to approach them to explain the study in more detail (Appendix 2a). For the non-clinical sample local secondary schools were emailed regarding the study, who then approached young people on the researcher's behalf.

All participants who agreed to be approached went on to participate with no dropouts. Different information sheets (Appendix 2b) and consent forms (Appendix 2c) were used for those aged 12 to 15 years and those aged 16 to 18 years old. All questionnaires were read to the young person by the researcher, to minimise likelihood of missing data and assist with any difficulties understanding. A protocol was in place for if the participant did not wish to respond, as detailed in the participant information sheet. Study information and a debrief was provided to all participants who provided informed consent and participated. The study had NHS multi-site ethical approval (Appendix 2d), University of Edinburgh and Edinburgh City Council ethical approval (Appendix 2e).

Assessment measures

Adult Attachment Projective (AAP; George & West, 2001);

The AAP is an adult attachment classification system, which is based on the analysis of individual's responses to a set of seven attachment related drawings and one neutral scene (George & West, 2001). These responses are narrative depictions which are then transcribed and coded, with the scoring evaluating qualities of discourse, content and defensive processing and also designates participants as secure, dismissing, preoccupied or unresolved (Ravitz *et al.*, 2010). The AAP has excellent concurrent validity, interrater reliability and test-retest reliability with no effects of verbal intelligence or social desirability (George & West, 2001). Webster and Joubert (2011) and Gander, George, Pokorny and Buchheim (2016) provide preliminary evidence of its applicability of use within an adolescent population – citing the potential of the AAP to assess clinically relevant variables, augment other psychological test data and enrich and inform decision making. They found adolescent norms for non-clinical populations as 42% secure; 34% insecure-dismissing; 13% insecure-preoccupied and 11% resolved. Classification codes were generated from the interviews by a member of the research team trained in the AAP coding system (AM).

Reflective Functioning Questionnaire for Youths (RFQ-Y; Sharp, Williams, Ha, Baumgardner, Michonski et al., 2009);

The RFQ-Y contains 46 self-report items assessing adolescent reflective functioning using a Likert scale. It has adequate internal reliability with significant positive associations with criterion and convergent validity via criterion measures of reflective functioning, experimental based assessment of mentalization and relations of empathy (Ha, Sharp, Ensink, Fonagy & Cirino, 2013). The scales used for analysis were Certainty about Mental States (RFc), which focuses on the extent to which individuals disagree with statements such as “*I don’t always know why I do what I do*”, where very low agreement on this scale reflects hypermentalizing (Fonagy *et al.*, 2016), or overinterpretative mental state reasoning. The Uncertainty about Mental States (RFu) subscale assessed hypomentalizing, or mentalizing to a lesser degree. The syntax to rescore both scores was accessed from <https://www.ucl.ac.uk/psychoanalysis/research/rfq>. The scale had an acceptable level of internal consistency for the certainty measures $\alpha=0.681$ and a high level of internal consistency for the uncertainty measures of $\alpha = 0.818$.

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994);

The EDE-Q is a self-report 36-item measure using a Likert scale which is adapted from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1987). It has a 28-day time frame and asks directly about the frequency of key eating disorder behaviours (Carter, Stewart & Fairburn, 2001). Means (M) and standard deviations (SD) for non-clinical female adolescent norms are reported as; restraint M=1.4, SD=1.5; eating concern M=1.0, SD=1.0; shape concern M=2.2; SD=1.7; weight concern M=1.8; SD=1.7; and global score M=1.6; SD=1.4 (Carter, Stewart & Fairburn, 2001). Mond, Hay, Rodgers, Owen and Beumont (2004) found good concurrent validity and acceptable criterion validity. Previous research has found excellent internal consistency and two-week test-retest reliability for the four subscales (Luce & Crowther, 1999). Additionally, it has been widely used with adolescents (Brown, Winzelberg, Abascal & Taylor, 2004; Mayer, Muris, Freher, Stout & Polak, 2012). IBW was calculated using weight, height and age using an Excel spreadsheet within NHS Lothian, available at tvscn.nhs.uk/wp-content/uploads/2016/11/Weight-calculator.pdf. The scale had a high level of internal consistency in the current study's sample of $\alpha=0.965$.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004);

The DERS is a 36-item self-report measure examining difficulties with emotion regulation using a Likert scale. In adolescent research the DERS has shown excellent internal consistency, good test-retest reliability and adequate convergent validity with established measures of emotion dysregulation and emotional avoidance, as well as adequate predictive validity of self-reported behavioural outcomes which were associated with emotion dysregulation (Gratz & Roemer, 2004). For non-clinical populations, overall adolescent norms are $M=78.9$ and $SD=23.2$, and for adolescent females $M=80.2$ and $SD=23.4$ (Weinberg & Klonsky, 2009). Neumann, van Lier, Gratz and Koot (2009) found that a confirmatory factor analysis suggested a similar factor structure in their adolescent sample compared to adults, which combined with results from their research shows promising internal consistency and validity in adolescents. The scale had a high level of internal consistency for the study's sample $\alpha=0.976$.

Statistical analysis

All data was analysed using the Statistical Package for Social Sciences (SPSS) 22.0. Data was initially visually assessed for normality for any extreme outliers, with kurtosis and skewness between -2 to +2, as well as inspection of Q-Q plots and Shapiro-Wilks significance as the

sample size is under 50. Parametric or non-parametric analyses were conducted accordingly. Due to the small sample size, all data was bootstrapped using bias corrected and accelerated (BCa) confidence intervals of 95%. Missing data was only present for weight and height for the EDE-Q due to the participant not knowing, with that participant being excluded from the analysis on IBW and the data entered as missing.

Independent samples t-tests and chi square tests were completed to determine differences between eating behaviour, RF and emotion regulation between the two groups. Further analysis of variances (ANCOVA) were then further used in order to control for emotion regulation whilst assessing RF and group.

IBW was calculated for the entire sample and correlations were conducted to assess any association with RF. A general linear model was also conducted to assess any association between resolved and unresolved (combining unresolved, preoccupied and dismissing) attachment type and IBW. These analyses were also conducted for presence of binge/purge behaviour within the entire sample. Post hoc power calculations were carried out using G*Power (Faul, Erdfelder, Buchner & Lang, 2009) where appropriate to assess effect size and power.

Results

Descriptive characteristics

Descriptive data for the main study variables and clinical characteristics are detailed in Table 1.

Table 1. Descriptive data and clinical characteristics of ED and control groups

Study variable	Eating Disorders participants				Control group participants			
	<i>N</i>	<i>M(±SD)</i>	Min	Max	<i>N</i>	<i>M(±SD)</i>	Min	Max
Age	14	15.64(±1.50)	13.00	18.00	18	15.61(±2.00)	12.00	18.00
EDE-Q total score	14	4.29(±0.87)	2.72	5.70	18	0.93(±1.05)	0.00	3.47
EDE-Q eating concern subscale	14	3.80(±0.76)	2.40	4.80	18	0.53(±0.74)	0.00	2.60
EDE-Q shape concern subscale	14	5.29(±0.80)	3.50	6.00	18	1.17(±1.64)	0.00	5.00
EDE-Q weight concern subscale	14	4.57(±1.09)	2.40	6.00	18	1.16(±1.17)	0.00	3.80
EDE-Q restraint	14	3.52(±1.60)	1.00	6.00	18	0.87(±1.04)	0.00	3.00

subscale								
EDE-Q	6	33.83(±15.54)	11.00	52.00	5	20.60(±11.59)	5.00	32.00
binge/purge								
subscale								
Ideal body	13	90.49(±8.76)	74.83	104.65	7	98.99(±11.83)	86.33	121.36
weight for								
height %								
DERS total	14	127.43(±17.01)	101.00	162.00	18	74.78(±29.63)	46.00	154.00
score								
RF for certainty	14	1.86(±2.41)	2.00	5.00	18	5.00(±3.10)	0.00	10.00
subscale								
RF for	14	10.21(±5.91)	3.00	19.00	18	5.22(±4.05)	0.00	10.00
uncertainty								
subscale								

EDE-Q scores were compared between the ED and non-ED group to confirm significant between group differences. Both global scores and subscale scores all showed significant differences, $p < .001$ (Table 2).

Table 2. EDEQ scores across ED and non-ED groups

EDEQ subscale	Mean difference	Standard Deviation	95% Confidence Intervals (lower, higher)	T value (degrees of freedom)	P value	Effect size (Cohen's d)	Power
Restraint	2.65	.490	1.62, 3.75	$t(30) = 5.666$	< .001	1.96*	0.99
Eating concerns	3.26	.261	2.74, 3.78	$t(30) = 0.36$	< .001	4.38*	1.00
Shape concerns	4.11	.435	3.21, 4.96	$t(30) = 7.008$	< .001	3.20*	1.00
Weight concerns	3.41	.388	2.58, 4.27	$t(30) = .263$	< .001	3.03*	0.99
Global score	3.36	.334	2.62, 4.13	$t(30) = .605$	< .001	3.48*	1.00

*= large effect size

RF abilities for adolescents diagnosed with ED will differ compared to non-clinical controls

An independent samples t-test was used to determine if there were differences in RF between the two groups. ED RFu score was higher than non-ED RFu score (M differences=4.99; SD=1.80; 95% CI [1.34,8.53]) with a large effect size of 0.98 and power of 0.75, which was statistically significant; $t(30)=2.704$, $p=.013$. ED RFc score was lower than non-ED RFc score (M differences=-3.14; SD=0.96; 95% CI [-4.89,-1.18]) with a large effect size of 1.13 and power of 0.87, which was statistically significant different; $t(30)=-3.120$, $p=.004$. To control for the effect of emotion regulation, an analysis of covariance (ANCOVA) was conducted, controlling for DERS as the covariate. After adjustment for DERS, there was no statistically significant difference between group and RFu, $F(1,29)=0.057$, $p=.813$, $\eta^2=.002$ (effect size 0.17 and power 0.06), or group and RFc, $F(1,29)=0.850$, $p=.364$, $\eta^2=.028$ (effect size 0.04 and power 0.05).

Attachment style for adolescents diagnosed with ED will differ compared to non-clinical controls

Attachment classifications between the two groups are detailed in Table 3. A chi-square test was conducted between group and unresolved (dismissing; preoccupied; unresolved) versus resolved attachment style. The groups were combined into resolved and

unresolved due to low numbers of secure attachments in the clinical group. There was a statistically significant association between group and unresolved or resolved attachment style, $\chi^2(1)=9.871$, $p=0.002$, with a strong association, $\Phi=0.55$ and power of 0.87.

Table 3. Attachment styles for clinical and control group

Category	Clinical (n=14)	Control (18)
Secure (F)	1 (7%)	10 (55%)
Dismissing (Ds)	0 (0%)	3 (16.5%)
Preoccupied (E)	4 (27%)	3 (16.5%)
Unresolved (U)	9 (60%)	2 (11%)

IBW will affect RF and attachment abilities

Scatterplots were visually assessed to examine whether there was any correlation between IBW and RF. All data visually assessed appeared to be non-monotonic, with Spearman's correlation tests reporting no association between the variables (Table 4). This showed no association between IBW and RF ability.

Table 4. Percentage of ideal body weight for height

Variable	Degrees of Freedom	r.	p	95% Confidence Intervals (lower, higher)
RFc	18	-.226	.338	-.611, .209
RFu	18	-.155	.514	-.598, .346

A general linear model (GLM) was used to assess an association between attachment type (unresolved versus resolved) and IBW. It showed no association between the two variables; $F(1,5.33)=.046$, $p=.833$, $\eta_p^2=.050$.

Difference in attachment and RF abilities in those participants who binge/purge in comparison to controls

Binge/purge behaviour was determined as two or more responses on EDE-Q questions 13 to 18 (on bingeing and purging behaviours). These scores were then added to provide the frequency of binge/purging behaviour in the previous 28 days. Scatterplots were visually assessed to examine whether there was any correlation between percentage of binge/purge behaviour and RF. All data visually assessed appeared to be non-monotonic, with Spearman's correlation tests reporting no association between RFu and binge/purge behaviour (Table 5). There

was a significant association reported between binge/purge behaviour and RFc.

Table 5. Binge/purge behaviour

Variable	Degrees of Freedom	r.	<i>p</i>	95% Confidence Intervals (lower, higher)
RFc	9	.624	.040*	-.915, -.054
RFu	9	.053	.878	-.739, .763

* significance of $p < .05$

A GLM was used to assess an association between attachment type (unresolved versus resolved) and binge/purge behaviour. It showed no association between the two variables; $F(1,4.56)=2.89$, $p=.099$, $\eta_p^2=.088$.

Discussion

The study's findings are consistent with previous research, in that adolescents with ED have more insecure attachment styles, poorer RF and more difficulties with emotion regulation than same age controls. These findings were not dependent on IBW and no differences were found with those who binge/purge, though this may have been underrepresented in the sample.

Attachment style

The ED sample were classified as 60% unresolved with regard to attachment (unresolved vs. dismissing, preoccupied and secure combined), compared to 11% in the control group, which correspond to non-clinical adolescent norms. Fifty-five percent of controls had secure attachments compared to 7% in the ED group. The secure attachment rate in controls corresponds favourably with rates in non-clinical populations of 55.2% secure attachment (Bakermans-Kranenburg & Van IJzendoorn, 2009). Therefore, our findings suggest a strong degree of generalisability. The current findings also support previous research suggesting those with ED have greater attachment insecurity than non-clinical samples (Caglar-Nazali *et al.*, 2014; Kuipers & Bekker, 2012; Gander *et al.*, 2015; Illing *et al.*, 2010), particularly adolescents (Ringer & Crittenden, 2007). Insecure attachment could potentially reduce and damage the therapeutic

alliance in therapy, as well as any help from family members, such as in family based therapy, as they may experience their family's attempts to help as controlling or even punitive (Jewell *et al.*, 2015). Clinicians may benefit from assessing attachment relationships to determine how their client's interpersonal functioning plays a role in their ED (Ty & Francis, 2013), as well as helping to facilitate change and reduce attrition.

Reflective functioning

Adolescents with ED had significantly more difficulties with emotion regulation and RF, supporting existing research (Skårderud, 2007; Tchanturia *et al.*, 2004; Fonagy & Target, 1996; Rothschild-Yakar *et al.*, 2010; Ward *et al.*, 2001). Those with ED were found to have significantly less hypermentalizing ability and significantly more hypomentalizing ability. These findings were not expected, with the control group scoring higher for hypermentalizing, indicating greater impairment and more assumptions about mental states.

This finding may be due to a Cronbach's alpha of 0.681, with findings under 0.7 defined as having acceptable internal consistency, as noted in previous studies (Ghossain, 2014). This potentially suggests that the items on the subscale may not measure the same construct or idea well. Closer inspection of the individual scale items revealed inconsistencies with items "*I am a good mind reader*" and "*I trust my*

feelings”, which may have contributed towards the discrepancy in scoring, as removing these questions increased internal consistency. Potentially the items were more easily misinterpreted by adolescents, or more open to interpretation, suggesting poor face validity (Ghossain, 2014). It has also been argued that text comprehension and understanding of ambiguous language requires a global approach, which deficits seen in central coherence within ED might affect (Tapajóz Pereira de Sampaio, Soneira, Aulicino & Allegri, 2013).

One other possible interpretation for this result comes from findings regarding mentalization skills in samples of schizophrenia-diagnosed individuals, who have reported hypomentalizing without hypermentalizing (Roux, Smith, Passerieux & Ramus, 2016). Hypermentalizing can be described as a social-cognitive process which makes assumptions about other’s mental states. It may be that the ED participants were unable to ‘take in the bigger picture’ and stuck in their thinking patterns due to emotional avoidance, poor set shifting, weak central coherence and concrete thinking, being unable to consider others’ mental states, or what could also be referred to as a teleological stance. This is where individuals focus on understanding actions in terms of their physical, purely observable terms, as opposed to mental terms (Skårderud, 2007). This may then have caused less over interpretative mental state reasoning, exacerbated by ego-syntonic dysfunctional appraisal of ED intrusive thoughts (Roncero, Belloch, Perpiñá & Treasure, 2013), reducing

hypermentalizing. With the RFQ-Y asking questions about emotional mental states, this hypothesis could potentially be supported by findings that those with AN show more impairments in affective mentalization than cognitive (Tapajóz Pereira de Sampaio *et al.*, 2013; Adenzato, Todisco & Ardito, 2012). Additionally, the finding that when controlling for emotion regulation removes a significant relationship between ED and RF suggests that emotional avoidance may have been a confounding variable and mediated the relationship, as supported by previous discussed research (Tasca & Balfour, 2014; Kuipers *et al.*, 2016). Further potential evidence comes from fear and avoidance of intense emotions in those with ED (Russell, Schmidt, Doherty, Young & Tchanturia, 2009), with individuals keeping a low body weight to avoid feeling (Russell *et al.*, 2009), and therefore having poor RF and being unable to identify mental states in others. Research with adolescents with borderline traits (Sharp, Pane, Ha, Venta, Patel *et al.*, 2011) also found reduced hypermentalizing, which the researchers hypothesised as the adolescents over-interpreting social cues as a strategy. Preliminary research has started examining hypermentalizing as a core feature of social-cognitive impairment in borderline personality disorder (Sharp & Vanwoerden, 2015). Research has started to focus more on social-cognitive processing within ED, but preliminary results are mixed and involve small sample sizes, though researchers have noted that it is surprising that little attempt has been made previously to further examine social-

cognitive processing, given the social difficulties noted before, during and after diagnosis (Russell *et al.*, 2009).

These findings highlight that RF is a multifaceted concept and treating it as a unidimensional continuum of intercorrelated function is an oversimplification (Langdon & Brock, 2008). Research with schizophrenia has begun to find links between hypomentalizing and negative symptoms, which would be interesting to assess in an ED population.

Percentage of ideal body weight for height findings

Previous research reports higher body weight being associated with more positive outcomes (Wales, Brewin, Cashmore, Haycraft, Baggott *et al.*, 2016; Sly & Bamford, 2011). However, our results found no association between attachment or RF and IBW. This coincides with clinical impressions that those at a low body weight can still perform well academically (Wales *et al.*, 2016). RF was not significantly affected by IBW, suggesting RF to be a more causal variable than consequential. This study's findings suggest that psychological intervention could be considered, even when an adolescent presents with low body weight, as RF appears to remain intact.

Binge/purge symptomology

No significant association was found between attachment or RF and binge/purge behaviour. This contradicts findings of lower levels of RF in purging subtype AN (Rothschild-Yakar *et al.*, 2010) and attachment related to ED symptoms (Tasca & Balfour, 2014). However, it potentially supports findings that those with BN have normal levels of RF (Pederson *et al.*, 2015), given no significant difference was accounted for in this study. It adds support to conflicting evidence between attachment style and ED subtype (O'Shaughnessy & Dallos, 2009). However, only 10 participants were classified as bingeing/purging in the past 28 days, so results were considerably under-powered.

Limitations and future research

The ED participants were recruited from inpatient and outpatient settings across NHS health boards in Scotland, therefore providing varied severity of symptoms in differing modalities and improving generalisation of these findings across ED symptomology. This study also adds to the limited use of the AAP within an adolescent sample.

An important limitation was the small sample size leading to under-powering and increased risk of Type II error. Self-report questionnaires were used, with the possibility of response bias and social desirability and the RFQ-Y potentially not having adequate

internal consistency, as discussed. Several participants expressed to the researcher that they found it difficult to answer the EDE-Q, as their eating behavior was artificial within an inpatient environment, therefore affecting their responses. Also, many of the control group did not know their weight and/or height which limited analyses. The study was cross-sectional in design. Therefore, conclusions about causal and temporal relationships cannot be made. Due to the difficult nature of engaging patients with ED, the data collection occurred once the individual had acclimatised into CAMHS and health care professionals felt comfortable approaching them regarding the study. The control group were recruited using volunteer sampling, which may have reduced representativeness of the sample. However, participants were recruited from all year groups as well as matching non-clinical adolescent norms for each of the measures. Future research should consider using the questionnaires as part of the assessment package when patients are first seen within services when their symptomology may be at its most critical. Equally, this could also examine attachment and RF as a mechanism to change by using the measures again post treatment or looking at outcomes of treatment. Data on how many people were approached and who did not wish to take part in the research was not recorded nor was illness duration. As all those who wished to meet to discuss the research in more detail also consented to and completed the study, it is possible that this increased the chance of sampling bias. Additionally, these results may not generalise to those

who drop out of treatment or non-treatment seeking samples.

Future research should consider these issues as well as conducting longitudinal studies and examining whether RF and attachment influences the process and outcome of an ED. Using case control study designs matched for ED symptomology but varied attachment and RF would allow further assessment of how these variables are implicated in the development of some ED symptoms (Jewell *et al.*, 2015). It would be of interest to further assess trans-diagnostic symptoms and symptom profiles in relation to attachment styles and RF, in order to recommend future psychological research as well as comparing RF in adolescents whilst ill and during recovery and relapse with a wide range of measures due to the complexity and multi-faceted nature. Neither has a study demonstrated that change in attachment affects eating symptomology, which would benefit the evidence base.

Conclusion

Research suggests that those diagnosed with an ED have lower RF and insecure attachment styles, which this study also found. It was found that hypermentalizing was lower for the ED population, which has been suggested as a potential consequence of poor internal consistency of the subscale and adolescents with ED concrete thinking style. None of the measured variables were affected by IBW.

This provides preliminary support for the use of person tailored interventions that target RF difficulties and acknowledge insecure attachment styles, even when a client is underweight, in order to promote secure attachment within the individual and RF. Combined with this study's findings of emotion regulation potentially mediating RF and ED, person tailored interventions may then also facilitate improvement in emotion regulation and ED symptomology. This is particularly the case given that insecure attachment and poor RF are linked to ED, in which emotion regulation presents as a core feature. This study is one of the first to empirically examine the relationships between attachment, RF and emotion regulation using self-report measures and the AAP, both in adolescent clinical and non-clinical samples.

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Empirical study appendices

Appendix 2a – agreement to be approached

Agreement to be approached v1_161115

Patient Identification Number:



University of Edinburgh/
NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
Telephone: 0131 651 3973



Project Title: Attachment and Mentalisation in Eating Disorders

Name of Researcher: Laurie Siddell

I have given my permission for the researcher, Laurie Siddell, to approach me to discuss the study in more detail. I understand that this does not mean I have to take part in the research and have the right to not participate, with my care being unaffected.

Your name

Signature

Date

Appendix 2b.i – participant information sheets (12-15 years old)

Participant Information Sheet (12-15) v5_050516



THE UNIVERSITY of EDINBURGH



Study Title: Attachment and Mentalisation in Eating Disorders

INFORMATION FOR PARTICIPANTS

We are asking if you would like to take part in a research study to answer some questions that we have and talk about in this information sheet. Before you decide if you would like to take part or not, it is important that you understand why this research study is being done and what you will be asked to do. Please read this information sheet carefully as many times as you like and talk to your family, friends, doctor or nurse if you would like to. If you would like to take part, you will be able to talk to the person in charge of the study to ask more questions.

1. Why are we doing this research?

This study will look at relationships and how somebody feels when they have a diagnosis of an Eating Disorder. By relationships we mean with members of your family and/or people who have looked after you as you have grown up. By how somebody feels we mean whether you feel angry, sad, etc. There is very little research into this for young people with an Eating Disorder and further research is needed to find out whether there are any differences, which could help future psychological therapy.

2. Why have I been given this information?

We are looking for young people who are aged between 12-18 years who have a diagnosis of an Eating Disorder and are going to appointments at NHS Lothian/NHS Glasgow/NHS Borders/NHS Forth Valley/NHS Fife CAMHS (*deleted as appropriate*). If this is you, we would like to ask you whether you would like to take part in our study. We will not tell your parent/guardian that you are taking part in the study, however we would recommend that you do so if you feeling comfortable telling them. If you would like to bring your parent/guardian or a member of staff from CAMHS with you when you meet with us to discuss the research you are very welcome to do so. They are also welcome to join us when you are answering the questionnaires.

3. Do I have to take part?

No, **it is up to you to decide** whether or not to take part. You should not feel under any pressure to make the decision. If you do decide to take part, you will be asked to sign a consent form, which everyone is asked to do. Even after signing you can change your mind without saying why and stop taking part in the study. This will not affect any care that you are getting. You also do not have to answer all the questions if you do not want to. If there is a question you do not want to answer, we will ask you to raise your hand and then the researcher will move on to the next question. Some of the questionnaires will record our voices on a recording device. Any recordings of interviews will be written up and these will have all personal details removed so that you cannot be identified from the written answers.

4. What will happen to me if I take part?

You will be asked to talk to our researcher at the CAMHS clinic that you attend to talk about the study in more detail. Here the study will be explained more, explaining our reasons for doing it and answering any questions you may have. If you decide that you wish to take part in this study you will be asked to sign a consent form. You will then be asked four questionnaires which will be read to you by the researcher and you answer back, which will take approximately an hour to complete. These questionnaires will ask you about your eating behaviour; what your relationships are like with other people; your feelings and thoughts and other people's feelings and thoughts; and how you feel when you get upset. If you would like a parent/guardian or a member of the CAMHS team to be with you when answering the questions you are more than welcome to bring them along. If there is any question you do not want to answer too we will ask you to raise your hand so that we can leave that question out.

5. What are the advantages and disadvantages to taking part?

The advantages are that the results from the study might help make psychological therapies better for young people in the future. However, you might find that talking about some of these things may make you upset or feel sad. You can talk to the researcher about this and can stop taking part in the study at any point without saying why. You can also talk to your CAMHS team about taking part and any questions that you may have. If the person asking you questions thinks that you are very upset and are worried about you, they will talk about this with you and might talk to your health care team.

6. Who will know that I am taking part in the study?

Your healthcare team involved in your care at CAMHS will know. For example, you may be talking to a doctor or a nurse already. We will also send a letter to your GP to let them know you are taking part. All of your answers and information, such as name and age, will be kept private and only the people on the research team will see it. If we are worried that you are very upset we will talk about this with your CAMHS team or your GP as we want you to be safe. However, we would **ALWAYS** talk to you about this before we speak to anybody else.

9. Who is in charge of the research?

The research team is Laurie Siddell, Dr Fiona Duffy, Dr Angus Macbeth and Dr Leanne Galloway. Laurie is a Trainee Clinical Psychologist completing this research as part of her university coursework. Fiona, Angus and Leanne are all Clinical Psychologists who work both in CAMHS and NHS Lothian and Fiona and Angus also work at the University of Edinburgh. This study has been reviewed by the South East Scotland Research Ethics Committee 01. It is funded by the University of Edinburgh and NHS Lothian. If you would like a summary of the study results you will be provided with a reply slip on the debrief form to give to the researcher, which you will be given after the questionnaires are finished.

10. What if there is a problem?

If you are worried about anything, you should speak to the person in charge of the study who will do their best to answer any questions that you have. If you wish to make a complaint about the study please contact the University of Edinburgh's Research Governance team via email at: researchgovernance@ed.ac.uk

Please keep this information sheet to look at again.

Thank you very much for taking the time to read this

If you want to talk about the study any more, please contact:

Principal Investigator:

Laurie Siddell
Trainee Clinical Psychologist
University of Edinburgh/NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
T: 0131 6513973

Principal Academic Supervisor:

Dr Fiona Duffy
Consultant Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Clinical Supervisor:

Dr Leanne Galloway
Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Independent contact:

Dr Ken MacMahon
Senior Lecturer
Room 1M2, Doorway 6
Medical Quad
Teviot Place
Edinburgh
EH8 9AG
T: 0131 651 3960

Appendix 2b.ii – participant information sheets (16-18 years old)

Participant Information Sheet (16-18) v5_050516



THE UNIVERSITY of EDINBURGH



Study Title: Attachment and Mentalisation in Eating Disorders

INFORMATION FOR PARTICIPANTS

You are being invited to take part in a research study. It is important for you to understand why the research is being done and what it will involve. Please take time to read the information below carefully, and discuss it with others if you wish. Our researcher will be happy to answer any questions that you might have about the information written below. Feel free to ask if there is anything that is not clear, or if you would like more information. You may wish to read the information sheet more than once, and you should take time to decide whether or not you wish to take part. If you are interested in taking part, there will be an opportunity to discuss the research further before you make your final decision.

1. What is the purpose of the study?

This study is examining the effects of early relationships and ability to handle emotions on young people who are diagnosed with an Eating Disorder. By relationships we mean with family members and/or guardians/carers and by emotions we mean whether you feel angry, sad, etc, and are able to recognise and control that emotion. There is very little research into this for young people with an Eating Disorder and further research is needed to find out whether there are any differences in attachment and ability to handle emotions, which could affect future therapy that young people receive. This study will help to address this.

2. Why have I been given this information?

We are looking for young people who are aged between 12-18 years who have a diagnosis of an Eating Disorder and are receiving treatment from NHS Lothian/NHS Glasgow/NHS Borders/NHS Forth Valley/NHS Fife CAMHS (*deleted as appropriate*). If you fit these criteria, we would like to invite you to enter our study. We will not tell your parent/guardian that you are taking part in the study, however we would recommend that you do so if you feeling comfortable telling them. If you would like to bring your parent/guardian or a member of staff from CAMHS with you when you meet with us to discuss the research you are very welcome to do so. They are also welcome to join us when you are answering the questionnaires.

3. Do I have to take part?

No, **it is up to you to decide** whether or not to take part. You should not feel under any pressure to make the decision. If you do decide to take part, you will be asked to sign a consent form. Even after signing you are still free to withdraw at any time and without giving a reason. This will not affect any healthcare you may receive now or in the future. You also do not have to answer all the questions if you do not want to. If there is a question you do not want to answer, we will ask you to raise your hand and then the researcher will move on to the next question. Some of the questionnaires will be recorded on a recording device. Any recordings of interviews will be written up and the write up will have all personal details removed so that you cannot be identified from them.

4. What will happen to me if I take part?

You will be invited to meet our researcher at the CAMHS clinic that you attend to discuss the study in more detail. Here the exact nature of the research will be explained, explaining our reasons for conducting this study and answer any questions you may have. If you decide that you wish to participate in this study you will be asked to sign a consent form. Following this, you will be asked four questionnaires which will be read to you by the researcher and you answer back verbally, which will take approximately an hour to complete. These questionnaires will ask you about your eating behaviours; your relationships with other people; what happens when you feel upset and how you and you believe others think and feel. If you would like a parent/guardian or a member of the CAMHS team to be with you when answering the questions you are more than welcome to invite them. If there is any question you do not want to answer too we will ask you to raise your hand so that we can leave that question out.

5. What are the advantages and disadvantages to taking part?

The information gathered from this study will help us better understand the effects of early relationships and emotion management for young people. This may inform new ways of diagnosing Eating Disorders and development of future therapies that may be helpful to those with an Eating Disorder. However, it is also possible that talking about some of these issues may be upsetting. You will have the opportunity to discuss any concerns you have with the researcher and you are free to withdraw from the study at any point without explaining why. You can also talk to your CAMHS clinician about participation in this study and any concerns you may have. If the researcher feels that you are at risk to yourself or to anybody else, they will discuss this further with you and the research team.

6. Who will know I am participating in the study?

Other CAMHS clinicians and your healthcare team involved in your care will be informed. For example, you may be seeing a Consultant Psychiatrist or a Community Psychiatric Nurse already. We will also send a letter to your GP to let them know you are taking part.

7. Who will have access to information collected about me during this study?

Your information from the study will be as confidential as your medical records. This includes everything, such as your consent form, questionnaire answers, etc. The information that you provide to the researcher from the questionnaires will not be shared with other people, i.e. medical staff or people involved in your care, unless you say it is okay to do so. The only instance in which information you provide may be shared is if you provide us with information which indicates that either yourself or another person is at risk of danger, in which case we would need to share this information with another person involved in your care such as your CAMHS clinician or your GP. However, we would **ALWAYS** discuss this with you beforehand.

8. What will happen to the results of the research?

After the study is completed, we will analyse the results and submit them for publication in a scientific journal. Presentations may also be given at scientific conferences such as for the British Psychological Society. The results from the study will hopefully be used to improve services and future care for young people diagnosed with an Eating Disorder. You will **not** be identified in any publication or presentation.

If you wish to know the outcome of our research please let us know on the debrief form and we can send you the findings once the study is completed.

9. Who is organising the research?

The research team is Laurie Siddell, Dr Fiona Duffy, Dr Angus Macbeth and Dr Leanne Galloway. Laurie is a Trainee Clinical Psychologist completing this research as part of her university coursework. Fiona, Angus and Leanne are all Clinical Psychologists who work both in CAMHS and NHS Lothian and Fiona and Angus also work at the University of Edinburgh. This study has been reviewed by the South East Scotland Research Ethics Committee 01. It is funded by the University of Edinburgh and NHS Lothian. If you would like a summary of the study results you will be provided with a reply slip on the debrief form to give to the researcher.

10. What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your questions. If you wish to make a complaint about the study please contact the University of Edinburgh's Research Governance team via email at:
researchgovernance@ed.ac.uk

Please keep this information sheet for future reference.

Thank you very much for reading this and for any further involvement with this study

If you want to discuss this study any further, please contact:

Principal Investigator:

Laurie Siddell
Trainee Clinical Psychologist
University of Edinburgh/
NHS Scotland Clinical Psychology Training
Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
T: 0131 6513973

Principal Academic Supervisor:

Dr Fiona Duffy
Consultant Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Clinical Supervisor:

Dr Leanne Galloway
Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Independent contact:

Dr Ken MacMahon
Senior Lecturer
Room 1M2, Doorway 6
Medical Quad
Teviot Place
Edinburgh
EH8 9AG
T: 0131 651 3960

Appendix 2b.iii – participant information sheets (controls 12-15 years old)

Participant Information Sheet (12-15 non-clinical controls) v5_050516



THE UNIVERSITY of EDINBURGH



Study Title: Attachment and Mentalisation in Eating Disorders

INFORMATION FOR PARTICIPANTS

We are asking if you would like to take part in a research study to answer some questions that we have and talk about in this information sheet. Before you decide if you would like to take part or not, it is important that you understand why this research study is being done and what you will be asked to do. Please read this information sheet carefully as many times as you like and talk to your family, friends, doctor or nurse if you would like to. If you would like to take part, you will be able to talk to the person in charge of the study to ask more questions.

1. Why are we doing this research?

This study will look at relationships and how somebody feels when they have a diagnosis of an Eating Disorder. By relationships we mean with members of your family and/or people who have looked after you as you have grown up. By how somebody feels we mean whether you feel angry, sad, etc. There is very little research into this for young people with an Eating Disorder and further research is needed to find out whether there are any differences, which could help future psychological therapy.

2. Why have I been given this information?

We are looking for young people who are aged between 12-18 years who **DO NOT** have a diagnosis of an Eating Disorder and are going to school in Edinburgh. If this is you, we would like to ask you whether you would like to take part in our study. If you feel that you do have an Eating Disorder please tell the researcher who can try and help you with some next steps to take. We will not tell your parent/guardian that you are taking part in the study, however we would recommend that you do so if you feeling comfortable telling them. If you would like to bring your parent/guardian or a member of staff from your school with you when you meet with us to discuss the research you are very welcome to do so. They are also welcome to join us when you are answering the questionnaires.

3. Do I have to take part?

No, **it is up to you to decide** whether or not to take part. You should not feel under any pressure to make the decision. If you do decide to take part, you will be asked to sign a consent form, which everyone is asked to do. Even after signing you can change your mind without saying why and stop taking part in the study. This will not affect any care that you are getting. You also do not have to answer all the questions if you do not want to. If there is a question you do not want to answer, we will ask you to raise your hand and then the researcher will move on to the next question. Some of the questionnaires will record our voices on a recording device. Any recordings of interviews will be written up and these will have all personal details removed so that you cannot be identified from the written answers.

4. What will happen to me if I take part?

You will be asked to talk to our researcher at the CAMHS clinic that you attend to talk about the study in more detail. Here the study will be explained more, explaining our reasons for doing it and

answering any questions you may have. If you decide that you wish to take part in this study you will be asked to sign a consent form. You will then be asked four questionnaires which will be read to you by the researcher and you answer back, which will take approximately an hour to complete. These questionnaires will ask you about your eating behaviour; what your relationships are like with other people; your feelings and thoughts and other people's feelings and thoughts; and how you feel when you get upset. If you would like a parent/guardian or a member of staff at your school to be with you when answering the questions you are more than welcome to bring them along. If there is any question you do not want to answer too we will ask you to raise your hand so that we can leave that question out.

5. What are the advantages and disadvantages to taking part?

The advantages are that the results from the study might help make psychological therapies better for young people in the future who are diagnosed with an Eating Disorder. However, you might find that talking about some of these things may make you upset or feel sad. You can talk to the researcher about this and can stop taking part in the study at any point without saying why. You can also talk to your school teachers about taking part and any questions that you may have. If the person asking you questions thinks that you are very upset and are worried about you, they will talk about this with you and might talk to your teachers.

6. Who will know that I am taking part in the study?

Your school teachers or members of staff who work at the school have told the researcher that you might be interested in the study. All of your answers and information, such as name and age, will be kept private and only the people on the research team will see it. If we are worried that you are very upset we will talk about this with your school and we might contact your GP, though we will not be contacting them to say you are involved in the research otherwise. However, we would **ALWAYS** talk to you about this before we speak to anybody else.

9. Who is in charge of the research?

The research team is Laurie Siddell, Dr Fiona Duffy, Dr Angus Macbeth and Dr Leanne Galloway. Laurie is a Trainee Clinical Psychologist completing this research as part of her university coursework. Fiona, Angus and Leanne are all Clinical Psychologists who work both in CAMHS and NHS Lothian and Fiona and Angus also work at the University of Edinburgh. This study has been reviewed by the South East Scotland Research Ethics Committee 01. It is funded by the University of Edinburgh and NHS Lothian. If you would like a summary of the study results you will be provided with a reply slip on the debrief form to give to the researcher, which you will be given after the questionnaires are finished.

10. What if there is a problem?

If you are worried about anything, you should speak to the person in charge of the study who will do their best to answer any questions that you have. If you wish to make a complaint about the study please contact the University of Edinburgh's Research Governance team via email at: researchgovernance@ed.ac.uk

Please keep this information sheet to look at again.

Thank you very much for taking the time to read this

If you want to talk about the study any more, please contact:

Principal Investigator:

Laurie Siddell
Trainee Clinical Psychologist
University of Edinburgh/NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
T: 0131 6513973

Principal Academic Supervisor:

Dr Fiona Duffy
Consultant Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Clinical Supervisor:

Dr Leanne Galloway
Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Independent contact:

Dr Ken MacMahon
Senior Lecturer
Room 1M2, Doorway 6
Medical Quad
Teviot Place
Edinburgh
EH8 9AG
T: 0131 651 3960

Appendix 2b.iv – participant information sheets (controls 16-18 years old)

Participant Information Sheet (16-18 non-clinical controls) v5_050516



THE UNIVERSITY of EDINBURGH



Study Title: Attachment and Mentalisation in Eating Disorders

INFORMATION FOR PARTICIPANTS

You are being invited to take part in a research study. It is important for you to understand why the research is being done and what it will involve. Please take time to read the information below carefully, and discuss it with others if you wish. Our researcher will be happy to answer any questions that you might have about the information written below. Feel free to ask if there is anything that is not clear, or if you would like more information. You may wish to read the information sheet more than once, and you should take time to decide whether or not you wish to take part. If you are interested in taking part, there will be an opportunity to discuss the research further before you make your final decision.

1. What is the purpose of the study?

This study is examining the effects of early relationships and ability to handle emotions on young people who are diagnosed with an Eating Disorder compared to those of the same age who do not have an Eating Disorder. By relationships we mean with family members and/or guardians/carers and by emotions we mean whether you feel angry, sad, etc, and are able to recognise and control that emotion. There is very little research into this for young people with an Eating Disorder and further research is needed to find out whether there are any differences in attachment and ability to handle emotions, which could affect future therapy that young people receive. This study will help to address this.

2. Why have I been given this information?

We are looking for young people who are aged between 12-18 years who **DO NOT** have a diagnosis of an Eating Disorder and are going to school in Edinburgh. If you feel that you do have an Eating Disorder please tell the researcher who can try and help you with some next steps to take. If you fit these criteria, we would like to invite you to enter our study. We will not tell your parent/guardian that you are taking part in the study, however we would recommend that you do so if you feeling comfortable telling them. If you would like to bring your parent/guardian or a member of staff from school with you when you meet with us to discuss the research you are very welcome to do so. They are also welcome to join us when you are answering the questionnaires.

3. Do I have to take part?

No, it is up to you to decide whether or not to take part. You should not feel under any pressure to make the decision. If you do decide to take part, you will be asked to sign a consent form. Even after signing you are still free to withdraw at any time and without giving a reason. This will not affect any healthcare you may receive now or in the future. You also do not have to answer all the questions if you do not want to. If there is a question you do not want to answer, we will ask you to raise your hand and then the researcher will move on to the next question. Some of the questionnaires will be recorded on a recording device. Any recordings of interviews will be written up and the write up will have all personal details removed so that you cannot be identified from them.

4. What will happen to me if I take part?

You will be invited to meet our researcher at the school that you attend to discuss the study in more detail. Here the exact nature of the research will be explained, explaining our reasons for conducting this study and answer any questions you may have. If you decide that you wish to participate in this study, you will be asked to sign a consent form. Following this, you will be asked four questionnaires which will be read to you by the researcher and you answer back verbally, which will take approximately an hour to complete. These questionnaires will ask you about your eating behaviours; your relationships with other people; what happens when you feel upset and how you and you believe others think and feel. If you would like a parent/guardian or a member of school staff to be with you when answering the questions you are more than welcome to invite them. If there is any question you do not want to answer too we will ask you to raise your hand so that we can leave that question out.

5. What are the advantages and disadvantages to taking part?

The information gathered from this study will help us better understand the effects of early relationships and emotion management for young people. This may inform new ways of diagnosing Eating Disorders and development of future therapies that may be helpful to those with an Eating Disorder. However, it is also possible that talking about some of these issues may be upsetting. You will have the opportunity to discuss any concerns you have with the researcher and you are free to withdraw from the study at any point without explaining why. You can also talk to your school about participation in this study and any concerns you may have. If the researcher feels that you are at risk to yourself or to anybody else, they will discuss this further with you and the research team.

6. Who will know I am participating in the study?

Your school teachers or members of staff who work at the school have told the researcher that you might be interested in the study.

7. Who will have access to information collected about me during this study?

Your information from the study will be as confidential as your medical records. This includes everything, such as your consent form, questionnaire answers, etc. The information that you provide to the researcher from the questionnaires will not be shared with other people, i.e. medical staff or people involved in your care, unless you say it is okay to do so. The only instance in which information you provide may be shared is if you provide us with information which indicates that either yourself or another person is at risk of danger, in which case we would need to share this information with another person such a member of staff at your school or your GP, though we will not be contacting them to say you are involved in the research otherwise. However, we would **ALWAYS** discuss this with you beforehand.

8. What will happen to the results of the research?

After the study is completed, we will analyse the results and submit them for publication in a scientific journal. Presentations may also be given at scientific conferences such as for the British Psychological Society. The results from the study will hopefully be used to improve services and future care for young people diagnosed with an Eating Disorder. You will **not** be identified in any publication or presentation. If you wish to know the outcome of our research please let us know on the debrief form and we can send you the findings once the study is completed.

9. Who is organising the research?

The research team is Laurie Siddell, Dr Fiona Duffy, Dr Angus Macbeth and Dr Leanne Galloway. Laurie is a Trainee Clinical Psychologist completing this research as part of her university coursework. Fiona, Angus and Leanne are all Clinical Psychologists who work both in CAMHS and NHS Lothian and Fiona and Angus also work at the University of Edinburgh. This study has been reviewed by the South East Scotland Research Ethics Committee 01. It is funded by the University of Edinburgh and NHS Lothian. If you would like a summary of the study results you will be provided with a reply slip on the debrief form to give to the researcher.

10. What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your questions. If you wish to make a complaint about the study please contact the University of Edinburgh's Research Governance team via email at: researchgovernance@ed.ac.uk

Please keep this information sheet for future reference.

Thank you very much for reading this and for any further involvement with this study

If you want to discuss this study any further, please contact:

Principal Investigator:

Laurie Siddell
Trainee Clinical Psychologist
University of Edinburgh/
NHS Scotland Clinical Psychology Training
Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
T: 0131 6513973

Clinical Supervisor:

Dr Leanne Galloway
Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Principal Academic Supervisor:

Dr Fiona Duffy
Consultant Clinical Psychologist
CAMHS Tipperlinn
Royal Edinburgh Hospital
Morningside Road
Edinburgh
EH10 5HF
T: 0131 5376364 (reception)

Independent contact:

Dr Ken MacMahon
Senior Lecturer
Room 1M2, Doorway 6
Medical Quad
Teviot Place
Edinburgh
EH8 9AG
T: 0131 651 3960

Appendix 2c.i – consent form (12-15 years old)

Attachment & Mentalisation in Eating Disorders v5_050516

Patient Identification Number:



University of Edinburgh/
NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
Telephone: 0131 651 3973



CONSENT FORM

Project Title: Attachment and Mentalisation in Eating Disorders

Name of Researcher: Laurie Siddell

Please initial the box if you agree:

1. I have read and understood the Information Sheet for this study dated 5th May 2016, (version 5). I have been able to think about the information, ask questions and have had these answered properly. ☐
2. I understand that it is up to me to decide whether to take part and taking part is entirely up to me. I am free to change my mind at any time, without giving any reason. This will not affect the care that I receive in any way. ☐
3. I understand that if the researcher is worried about a risk of harm to myself or someone else during the study, then they will speak to a member of my clinical team. ☐
4. I understand that relevant sections of my data collected during the study may be looked at by individuals from the regulatory authorities and from the Sponsor(s) (NHS Lothian and the University of Edinburgh) or from the/other NHS Boards(s) where it is relevant to my taking part in this research. I give permission for those individuals to have access to my records. ☐
5. I agree for portions of my interview to be recorded. I understand that the transcripts will be anonymized and that the audio recording will be destroyed after transcription. I give permission for anonymized quotations from these interviews to be used in reports about this research. Any recordings will be destroyed at the end of the study. ☐
6. I give permission for the researcher to tell my GP that I am taking part in the study. ☐
7. I agree to take part in this study. ☐

Your Name

Date

Your signature

Name of person taking consent

Date

Signature of person taking consent

When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes

CONSENT FORM FOR 12-15 (VERSION 5) 050516

Page 1 of 1

Appendix 2c.ii – consent form (16-18 years old)

Attachment & Mentalisation in Eating Disorders v5_050516

Patient Identification Number:



University of Edinburgh/
NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
Telephone: 0131 651 3973



CONSENT FORM

Project Title: Attachment and Mentalisation in Eating Disorders

Name of Researcher: Laurie Siddell

Please initial the box if you agree:

1. I have read and understood the Participant Information Sheet for this study dated 5th May 2016, (version 5). I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that taking part is entirely voluntary and that I am free to change my mind and withdraw at any time, without giving any reason. This will not affect the care that I receive in any way. ☐
3. I understand that relevant sections of my data collected during the study may be looked at by individuals from the regulatory authorities and from the Sponsor(s) (NHS Lothian and University of Edinburgh) or from the/other NHS Board(s) where it is relevant to my taking part in this research. I give permission to have access to my data. ☐
4. I understand that my CAMHS clinicians will be told that I am taking part in this study. ☐
5. I agree for portions of my interview to be recorded. I understand that the transcripts will be anonymized and that the audio recording will be destroyed after transcription. I give permission for anonymized quotations from these interviews to be used in reports about this research. Any recordings will be destroyed at the end of the study. ☐
6. I understand that if the researcher is worried about a risk of harm to myself or someone else during the study, then they will speak to a member of my clinical team. ☐
7. I give permission for the researcher to tell my GP that I am taking part in the study. ☐
8. I agree to take part in this study. ☐

Your Name

Date

Your signature

Name of person taking consent

Date

Signature of person taking consent

When completed: 2 for participant; 2 for researcher site file; 1 (original) to be kept in medical notes

CONSENT FORM FOR 16-18 (VERSION 4) 050516

Page 1 of 1

Appendix 2c.iii – consent form (controls 12-15 years old)

Attachment & Mentalisation in Eating Disorders v5_050516

Patient Identification Number:



University of Edinburgh/
NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
Telephone: 0131 651 3973



CONSENT FORM

Project Title: Attachment and Mentalisation in Eating Disorders

Name of Researcher: Laurie Siddell

Please initial the box if you agree:

1. I have read and understood the Information Sheet for this study dated 5th May 2016, (version 5). I have been able to think about the information, ask questions and have had these answered properly. ☐
2. I understand that it is up to me to decide whether to take part and taking part is entirely up to me. I am free to change my mind at any time, without giving any reason. This will not affect my legal rights. ☐
3. I understand that if the researcher is worried about a risk of harm to myself or someone else during the study, then they will speak to a member of my school. ☐
4. I understand that relevant sections of my data collected during the study may be looked at by individuals from the regulatory authorities and from the Sponsor(s) (NHS Lothian and University of Edinburgh) or from the/other NHS Board(s) where it is relevant to my taking part in this research. I give permission to have access to my data. ☐
5. I agree for portions of my interview to be recorded. I understand that the transcripts will be anonymized and that the audio recording will be destroyed after transcription. I give permission for anonymized quotations from these interviews to be used in reports about this research. Any recordings will be destroyed at the end of the study. ☐
6. I agree to take part in this study. ☐

Your Name

Date

Your signature

Name of person taking consent

Date

Signature of person taking consent

When completed: 1 for participant; 1 for researcher site file

CONSENT FORM FOR 12-15 CONTROLS (VERSION 5) 050516

Page 1 of 1

Appendix 2c.iv – consent form (controls 16-18 years old)

Attachment & Mentalisation in Eating Disorders vS_050516 Participant Identification Number:



University of Edinburgh/
NHS Scotland Clinical Psychology Training Programme
School of Health in Social Science
The University of Edinburgh
Medical School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG
Telephone: 0131 651 3973



CONSENT FORM

Project Title: Attachment and Mentalisation in Eating Disorders

Name of Researcher: Laurie Siddell

Please initial the box if you agree:

1. I have read and understood the Participant Information Sheet for this study dated 5th May 2016, (version 5). I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that taking part is entirely voluntary and that I am free to change my mind and withdraw at any time, without giving any reason. This will not affect my legal rights. ☐
3. I understand that if the researcher is worried about a risk of harm to myself or someone else during the study, then they will speak to a member of my school. ☐
4. I understand that relevant sections of my data collected during the study may be looked at by individuals from the regulatory authorities and from the Sponsor(s) (NHS Lothian and University of Edinburgh) or from the/other NHS Board(s) where it is relevant to my taking part in this research. I give permission to have access to my data. ☐
5. I agree for portions of my interview to be recorded. I understand that the transcripts will be anonymized and that the audio recording will be destroyed after transcription. I give permission for anonymized quotations from these interviews to be used in reports about this research. Any recordings will be destroyed at the end of the study. ☐
6. I agree to take part in this study. ☐

Your Name

Date

Your signature

Name of person taking consent

Date

Signature of person taking consent

When completed: 1 for participant; 1 for researcher site file

CONSENT FORM FOR 16-18 CONTROLS (VERSION 5) 050516

Page 1 of 1

Appendix 2d.i – REC ethical approval

Lothian NHS Board

South East Scotland Research Ethics Committee 01



Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG
Telephone 0131 536 9000

www.nhslothian.scot.nhs.uk

Date 16 December 2015
Your Ref
Our Ref

Miss Laurette Siddell
University of Edinburgh/NHS Scotland Clinical
Psychology Training Programme
School of Health in Social Science
Medical School (Doorway 6)
Teviot Place
Edinburgh
EH8 9AG

Enquiries to: Sandra Wyllie
Extension: 35473
Direct Line: 0131 465 5473
Email: Sandra.Wyllie@nhslothian.scot.nhs.uk

Dear Miss Siddell

Study title: Attachment and Mentalisation in Eating Disorders
REC reference: 15/SS/0224
IRAS project ID: 190039

Thank you for your letter of 08 December 2015, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact the REC Manager, Mrs Sandra Wyllie, sandra.wyllie@nhslothian.scot.nhs.uk.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm



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through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Covering letter on headed paper [Covering letter]	v1	08 December 2015
GP/consultant information sheets or letters [Referrer Participation Letter]	v1	21 September 2015

GP/consultant information sheets or letters [GP Participation Letter 210915]	v1	21 September 2015
Letters of invitation to participant [Consent to be approached]	v1	16 November 2015
Other [Screening proforma]	v1	08 December 2015
Other [Debrief (non-clinical controls)]	v2	08 December 2015
Other [Debrief (clinical group)]	v2	08 December 2015
Participant consent form [12-15 non-clinical controls Consent Form]	v4	08 December 2015
Participant consent form [16-18 non-clinical controls Consent Form]	v4	08 December 2015
Participant consent form [12-15 Consent Form]	v4	08 December 2015
Participant consent form [16-18 Consent Form]	v4	08 December 2015
Participant information sheet (PIS) [16-18 non-clinical controls PIS]	v4	08 December 2015
Participant information sheet (PIS) [12-15 non-clinical controls PIS]	v4	08 December 2015
Participant information sheet (PIS) [16-18 PIS]	v4	08 December 2015
Participant information sheet (PIS) [12-15 PIS]	v4	08 December 2015
REC Application Form [REC_Form_16112015]		16 November 2015
Research protocol or project proposal [Research proposal]	v7	08 December 2015
Other [Academic Supervisor CV - Angus MacBeth CV]	v1	18 November 2015
Summary CV for Chief Investigator (CI) [CV for Chief Investigator]	v1	21 September 2015
Summary CV for supervisor (student research) [CV for Supervisor]	v1	21 September 2015
Validated questionnaire [Difficulties in Emotion Regulation Scale]	v1	16 November 2015
Validated questionnaire [Reflective Functioning Questionnaire for Youths]	v1	16 November 2015
Validated questionnaire [EDE-Q]	v1	16 November 2015
Validated questionnaire [Adult Attachment projective]	v1	18 November 2015

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: <http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/>


HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at <http://www.hra.nhs.uk/hra-training/>

15/SS/0224	Please quote this number on all correspondence
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With the Committee's best wishes for the success of this project.

Yours sincerely



Dr Janet Andrews
Chair

Email: sandra.wyllie@nhslothian.scot.nhs.uk

Enclosures: "After ethical review – guidance for researchers"

Copy to: Mrs Jo-Anne Robertson
Mr Gavin Robertson, NHS Lothian R&D Office

Appendix 2d.ii – REC ethical approval

Lothian NHS Board

South East Scotland Research Ethics Committee 01



Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG
Telephone 0131 536 9000

www.nhslothian.scot.nhs.uk

16 May 2016

Date 16 May 2016
Your Ref
Our Ref

Miss Laurette Siddell
University of Edinburgh/NHS Scotland Clinical
Psychology Training Programme
School of Health in Social Science, Medical
School (Doorway 6)
Teviot Place, Edinburgh
EH8 9AG

Enquiries to: Sandra Wyllie
Extension: 35473
Direct Line: 0131 465 5473
Email: Sandra.Wyllie@nhslothian.scot.nhs.uk

Dear Miss Siddell

Study title: Attachment and Mentalisation in Eating Disorders
REC reference: 15/SS/0224
Amendment number: 01
Amendment date: 06 May 2016
IRAS project ID: 190039

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

The Committee had no ethical concerns regarding this amendment.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Covering letter on headed paper		05 May 2016
Notice of Substantial Amendment (non-CTIMP)		06 May 2016
Participant consent form [12-15 years old]	Version 5	05 May 2016
Participant consent form [12-15 years old - non clinical and controls]	Version 5	05 May 2016
Participant consent form [16-18 years old]	Version 5	05 May 2016
Participant consent form [16-18 years old - non clinical and controls]	Version 5	05 May 2016
Participant information sheet (PIS) [12-15 years old]	Version 5	05 May 2016
Participant information sheet (PIS) [12-15 years old - non clinical and controls]	Version 5	05 May 2016



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Participant information sheet (PIS) [16-18 years old]	Version 5	05 May 2016
Participant information sheet (PIS) [16-18 years old - non clinical and controls]	Version 5	05 May 2016
Research protocol or project proposal	Version 8	05 May 2016

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

15/SS/0224:	Please quote this number on all correspondence
-------------	--

Yours sincerely



Dr Chee Wee Tan
Chair

E-mail: sandra.wyllie@nhslothian.scot.nhs.uk

Enclosures: List of names and professions of members who took part in the review

*Copy to: Mr Gavin Robertson, NHS Lothian Research and Development Office
Mrs Jo-Anne Robertson*

South East Scotland REC 01

Attendance at Sub-Committee of the REC

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Mrs Christine Beadle	Research Nurse	Yes	
Dr Chee-Wee Tan	Lecturer in Physiotherapy	Yes	(In the Chair)

Also in attendance:

<i>Name</i>	<i>Position (or reason for attending)</i>
Mrs Sandra Wyllie	REC Manager

Appendix 2e – Edinburgh City Council ethical approval

30/04/2017

RE: Schools ethics form - SIDDELL Laurie

RE: Schools ethics form

Julie Innes <Julie.Innes@edinburgh.gov.uk>

Thu 25/02/2016 09:17

1c:SIDDELL Laurie <s1475170@sms.ed.ac.uk>;

Hi Laurie

We are happy to accept your PVG and approve your application. I will send you written confirmation in the post over the next day or so.

Julie

From: SIDDELL Laurie [mailto:s1475170@sms.ed.ac.uk]

Sent: 15 February 2016 16:43

To: Julie Innes

Subject: RE: Schools ethics form

Hi Julie,

Yes it is and I can confirm that others in my class have had this accepted, if it's okay for my PVG to also be okay? I can request a more up to date version otherwise,

Best wishes,

Laurie

Sent from [Outlook Mobile](#)

On Mon, Feb 15, 2016 at 8:35 AM -0800, "Julie Innes" <Julie.Innes@edinburgh.gov.uk> wrote:

Hi Laurie

Is your PVG from the start of your Three year research degree? If so, we can accept it despite being August 2014, as I think this is what we are doing with others in your class.

From: SIDDELL Laurie [mailto:s1475170@sms.ed.ac.uk]

Sent: 12 February 2016 14:35

To: Julie Innes

Subject: RE: Schools ethics form

Hi Julie,

No problem at all I've just mailed it to you first class so you should get it by Monday. Please let me know when it turns up!

Best wishes,

Laurie

Sent from [Outlook Mobile](#)

<https://outlook.office.com/owa/?viewmodel=ReadMessageItem&itemID=AAMkADVlMmYwMjI4LWFKYjktNGZlYjI0SMjllWm4ZTlZjcwODNkOABGAAA...> 1/3

30/04/2017

RE: Schools ethics form - SIDDELL Laurie

On Thu, Feb 11, 2016 at 4:07 AM -0800, "Julie Innes" <Julie.Innes@edinburgh.gov.uk> wrote:

Thanks Laurie. Is it possible you can send me your PVG in the mail as we need to see the original? I will scan and send it back to you.

My postal address is:

Julie Innes
City of Edinburgh Council
Children & Families
Waverley Court, Business Centre 1:2
4 East Market Street
Edinburgh EH8 8BG

Thanks

Julie

-----Original Message-----

From: SIDDELL Laurie [<mailto:s1475170@sms.ed.ac.uk>]
Sent: 06 February 2016 14:48
To: Julie Innes; Martin Gemmell
Subject: Fw: Schools ethics form

Hello again,

Sorry the below email got sent back to me as the copies of my PVG and university ethics were too large. I will scan and send them on Monday if you need them, otherwise as discussed below please find the favourable opinion and research questionnaire attached.

Kind regards,
Laurie

From: SIDDELL Laurie
Sent: 06 February 2016 14:44
To: Julie Innes; Martin Gemmell
Subject: Re: Schools ethics form

Hello both,

Thanks so much for the information and apologies for the late reply - getting through IRAS took a lot longer than I had anticipated. Please find attached the completed research questionnaire and also a copy of my PVG. This was completed though when I first started the course in September 2014 and does cover the three year training period if that is acceptable, as I know you've stated you need it dated within the year?

Also, as I have REC and R&D approval the university have approved the study through this. I have attached the email confirming this and also the REC favourable approval letter. Again, I hope this is enough?

Please do not let me know if you need more information. Thanks in advance for your help.

Kind regards,
Laurie

From: Julie Innes <Julie.Innes@edinburgh.gov.uk>
Sent: 10 November 2015 10:02
To: Martin Gemmell; SIDDELL Laurie

<https://outlook.office.com/owa/?viewmodel=ReadMessage&itemID=AAMkADVimYwMj4LWFKYjUuNGZlYj05MjJlM3M4ZTl5ZjcwODNkOAB0AAA...> 2/3

RE: Schools ethics form - SIDDHLL Laurie

No problem.

Julie

From: Martin Gemmell [<mailto:Martin.Gemmell@en.edin.sch.uk>]
Sent: 05 November 2015 13:48
To: SIDDELL Laurie
Cc: Julie Innes
Subject: RE: Schools ethics form

Laurie - you need ethics approval from your university, we just ask to see that. Are you already in the PVG system as individual work with children requires that, but you may have it already.

Martin

This email and files transmitted with it are confidential and are intended for the sole use of the individual or organisation to whom they are addressed.

If you have received this eMail in error please notify the sender immediately and delete it without using, copying, storing, forwarding or disclosing its contents to any other person. The Council has endeavoured to scan this eMail message and attachments for computer viruses and will not be liable for any losses incurred by the recipient.

From: SIDDELL Laurie (<mailto:s1475170@sms.ed.ac.uk>)
Sent: 04 November 2015 18:59
To: Martin Gemmell
Subject: Schools ethics form

I was wondering if you could help me please, I am a second year Clinical Psychology trainee with the University of Edinburgh and have been advised to contact you in regards to an ethical approval form I would need to complete in order to approach schools for my thesis research? Would it be possible to please get a copy of the form?

Thanks in advance for your help.

Kind regards,
Laurie Siddell

The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336.

<https://testbook.com/owa/Viewmodel=ReadMessageItem&ItemID=AAMRADVIMmYwME4LWBYRNGZTY0SMjILWM4ZTtZjcwODNkOABGAAA...> 39

Appendix 2f – Research proposal form



Doctorate in Clinical Psychology

Thesis Research Proposal (for Research 1 assessment)

This form should be completed and submitted as the assessment for Research 1. It will then be reviewed by a member of the academic team and will receive a grade and detailed feedback. The feedback will include an evaluation of the viability of the project and any recommendations. If there are significant concerns about viability, the project will be flagged to the research director and the research committee will decide whether the project can proceed in its current form.

Provisional Thesis Title: Attachment and Mentalization in Eating Disorders

Exam number:

Allocated Thesis Project Supervisors

Clinical: Leanne Galloway

Academic 1: Fiona Duffy

Academic 2: Angus MacBeth

Others involved as part of project team (if applicable): N/A

Proposed setting(s): NHS Lothian; NHS Glasgow; NHS Forth Valley; NHS Fife; NHS Borders
(where research will be carried out)

Anticipated Month & Year of Submission of Thesis: 1st May 2017

(Must be in final year for full time trainees. For flexible trainees, the month & year of submission will depend on their Individual Training and Development Plan. Trainees from 2011 intake onwards must submit in May, trainees who started in 2010 or earlier are advised to submit in May to reduce potential for HPC registration difficulties)

Please Note: Whilst this is not an ethics review process, where questions have some similarities to questions contained in the NHS IRAS Research Ethics form, the corresponding IRAS question numbers are given in parentheses. This is intended to facilitate completion of NHS ethics where such approval is needed.

Version (date): 14/07/2015
(excluding references): 5017

Word count

Introduction

Please provide a brief critical review of the relevant literature, which should clearly demonstrate the rationale and scientific justification for the research (Relevant to IRAS A12);

STATEMENT OF PROBLEM

Research into Eating Disorders (ED) has tended to show insecure attachment styles for both Anorexia Nervosa (AN) and Bulimia Nervosa (BN) when compared to non-clinical controls. Conversely, research into mentalization abilities has shown those with AN to have lower reflective functioning abilities with BN having more normal reflective functioning. Research has started to argue that considering a trans-diagnostic approach and how symptoms relate to emotion regulation and attachment may have greater clinical implications. A brief review of current literature and justification for the proposed study is discussed below.

EATING DISORDERS DIAGNOSTIC CRITERIA

There are several main diagnostic classifications of ED; AN, BN, OSFED and BED (APA, 2013). The DSM-5 states that EDs are characterised by a persistent disturbance in eating behaviours, which significantly impairs physical health or psychosocial functioning. The diagnoses are then further described in more detail, for instance AN being further separated into restricting type and binge-eating/purging type (APA, 2013) and BN characterized by behaviours such as self-induced vomiting (APA, 2013). OSFED has five specific examples for diagnosis within the DSM-5, for instance, atypical AN and night eating syndrome (APA, 2013).

Nevertheless, Pritts and Susman (2003) argue that the diagnosis of ED can be elusive, with more than half of cases actually going undetected. Harvey (2004) states that a trans-diagnostic perspective can help identify the processes that predispose, are involved in the aetiology and also maintenance of a disorder. This is supported by Fairburn *et al.* (2006), who found common mechanisms which were involved in the persistence of BN, AN and more atypical EDs. The authors continue to argue that by using a trans-diagnostic theory to examine how EDs are maintained can be beneficial in analysing the specific maintenance mechanisms. Equally, as many individuals recovering from an ED will move through diagnoses as part of their recovery (Fairburn *et al.*, 2008), it could be argued that by focusing on ED severity and the underpinning psychological constructs and how they map onto symptoms (e.g. associated binge/purge) will have greater clinical relevance. This could particularly be argued to be the case from an emotion regulation and attachment based perspective, which also has the potential to provide treatment implications.

ATTACHMENT

From infancy, individuals construct representational models of attachment, which are derived from role modelling and real life experiences (George & West, 2001). This is coined from Bowlby's theory of attachment (Bowlby, 1969; 1982; 1973), where he stated that individuals use attachments to interpret situations and forecast future behaviour and events, using their mental representations to tell attachment stories (George & West, 2001). It is argued to be one of the most important frameworks for understanding relationship functioning and affect regulation (Mikulincer & Shaver, 2007). Additionally, Ravitz *et al.* (2010) argue that research, which incorporates measurements of attachment, provides a unique perspective as attachment constructs are theoretically and empirically distinct from other personality and social constructs, such as dysfunctional beliefs and self-esteem.

Longitudinal studies suggest increased probability of adult psychopathology amongst those with insecure attachments in childhood (Tasca & Balfour, 2014). This is supported by Ravitz *et al.* (2010), who argue that attachment has been shown to influence a wide array of biopsychosocial phenomena, including social functioning and coping. Bakermans-Kranenburg and van Ijzendoorn (2009) completed a meta-analysis with more than 10,500 Adult Attachment Interview (AAI) classifications, which evaluates an individual's attachment style. They found in non-clinical samples that 58% were secure, 23% dismissing and 19% preoccupied. In comparison, the clinical samples showed 27% secure, 37% dismissing and 37% preoccupied. Tasca and Balfour (2014) argue that this research suggests a clear association between infant disorganised attachment and dissociative symptoms in early adulthood, as well as infant resistant attachment and anxiety disorders in adolescence.

Furthermore, Bakermans-Kranenburg and van Ijzendoorn found that disorders with an internalizing dimension (e.g. borderline personality disorders) associated more with preoccupied and unresolved attachments, whereas more externalizing disorders (e.g. antisocial personality disorders) were more associated with dismissing as well as preoccupied attachments. So the samples that were violent against their own bodies, argued for in the case of AN, showed a predominance of dismissing attachments, which the authors argued fit into the externalising profile the best.

MENTALIZATION

Though research has linked insecure attachment to conditions such as eating disorders, the specific mechanisms and variables involved remain poorly understood (Cate *et al.*, 2013). Mentalization has come into more recent focus, where internal working models become the basis for consistent ways in which children and adults interact with the world, experience themselves and others and regulate affect (Tasca & Balfour, 2014). It is an automatic procedure, preconsciously invoked in human action, whereby the actions of self and others become meaningful and predictable (Fonagy *et al.*, 1998).

Fonagy and Luyten (2009) state that with controlled mentalization, which is explicit, there is interpersonal conflict because it is hard to consider and reflect on the impact of the self on others. This leads to overwhelming dysregulated emotions, which aren't balanced by cognition and come to dominate the individual's behaviour. This lack of contextualising of said feelings then leads to catastrophising. Fonagy *et al.* (2004) further state that at these points of high affect, the individual's capacity to mentalize is subsequently reduced. However, Pedersen *et al.* (2012) argue that reflective functioning knowledge for clinical samples and in the general population is still limited.

The ability to mentalize is argued as being context dependent and especially vulnerable in attachment contexts (Fonagy & Bateman, 2006) or when considering symptomatic areas (Rudden *et al.*, 2009). For instance, Rudden *et al.* (2006) found that patients with panic disorder had normal reflective functioning abilities but, when asked specifically to reflect on the panic disorder in isolation, their reflective functioning diminished. This would therefore suggest that symptom severity and focus on symptoms influences the individual's ability to mentalize.

ATTACHMENT AND MENTALIZATION IN EATING DISORDERS

Preliminary research has found that individuals with ED have shown impairments in their mentalizing capacities (Skarderud, 2007; Tchanturia *et al.*, 2004). Cate *et al.*, (2013) argues that as symptoms and risk factors are currently emerging at earlier ages, it would make sense that individuals at risk for the development of ED will also exhibit deficits in their mentalization capacities. Cate *et al.* further state that their ED will develop as a

maladaptive means of coping with said deficits and converting internal struggles into external symptomology, as previously discussed by Ravitz *et al.* (2010).

To date, the application of attachment theory to ED is limited and applying an attachment framework might result in better understanding of symptoms and improved treatment outcomes (Illing *et al.*, 2010). Tasca & Balfour (2014) argue that there are four relevant domains of attachment functioning which are relevant to ED; affect regulation, interpersonal style, coherence of mind and reflective functioning. They concluded that those with ED had higher levels of attachment insecurity and disorganised mental states with lower reflective functioning being associated specifically with AN and attachment anxiety associated with ED symptom severity. This is supported by Pedersen *et al.* (2012), who found that patients diagnosed with BN had close to normal mentalizing abilities.

A meta-analysis by Caglar-Nazali *et al.* (2014) recently showed that those with ED had greater attachment insecurity with a large effect size ($d=1.31$), as measured by self-report measures. It is also notable that this was the second largest effect size after negative self-evaluation. This is supported by Kuipers and Bekker's (2012) cross-sectional review, showing a higher frequency of insecure attachment classifications in patients compared to a non-clinical population. Of interest, they reported no correlations between specific insecure attachment classification and specific ED diagnoses or symptoms, as well as revealing that mentalizing capacity was lower in ED patients than in controls. Illing *et al.* (2010) conversely found that higher attachment avoidance was more associated with AN binge purge subtype compared to AN restricting subtype and BN, as well as having higher attachment anxiety compared to BN.

However, Kuipers and Bekker's findings are supported by Tasca and Balfour (2014), who found from their review that findings are inconsistent and not affected by assessment of the attachment (i.e. whether AAI or self-report). They conclude that attachment insecurity isn't related to a specific ED diagnosis, though state that it may be related to severity of ED symptoms across diagnostic groups as discussed previously. Illing *et al.* (2010) also support this, stating that higher attachment anxiety is significantly related to greater ED symptom severity and poorer treatment outcomes across all EDs, even after controlled for ED diagnosis. This is of particular interest, as symptom severity then seems to be a larger factor affecting an individual's attachment style and mentalization ability suggesting a more trans-diagnostic model would be more appropriate in the treatment of ED.

This would appear to be relevant for clinical practice, as taking specific ED components such as binge/purge would be useful as they would endure even if AN was present, as there would be the AN purge subtype present. For instance, Harrison *et al.* (2010) found a difference between restricting ED symptoms and non-clinical controls in an emotion recognition task with a small to medium effect size. Equally, Espeset *et al.* (2012) found that different emotions were managed by specific ED behaviours, such as sadness being managed through restrictive eating and purging. They concluded that understanding relationships between individuals' negative emotions and ED behaviour has important treatment implications. This is supported by Tasca *et al.* (2000), who propose that tailored clinical interventions which take into account attachment style and affect regulation strategies are crucial. They particularly emphasised that those who experience attachment anxiety should practice impulse regulation whilst attachment avoidance should expose individuals to affective expression.

Research Questions / Objectives:

2) What is the principal research question / objective? (IRAS A10);

How does the mentalization abilities for adolescents diagnosed with ED differ when compared to non-clinical controls?

3) What are the secondary research questions / objectives if applicable? (IRAS A11);

- a) Does percentage of ideal body weight show any differences in mentalization and attachment representations?
- b) Do those with ED show less reflective functioning when compared to non-clinical controls?
- c) Does the presence of binge/purge behaviour, independent of diagnosis, affect attachment and mentalization abilities?

Methodology

4) Please give a full summary of your design and methodology. It should be clear exactly what will happen at each stage of the project (Relevant to IRAS A13);

Research Design

The study will employ an independent measures, cross sectional quantitative design with participants completing a set of four questionnaires measuring a range of variables including; attachment style, reflective functioning ability, emotion regulation and eating behaviours. These will be analysed using a multivariate analysis of variance (MANOVA).

Ethics

NHS ethical approval will be sought using IRAS and multisite NHS board ethical approval employed, as well as The University of Edinburgh, School of Health in Social Science. Ethical standards and guidelines (British Psychological Society, 2009) have been adhered to in order to develop the current study. Approval will also be sought from Edinburgh Council to recruit within schools for the non-clinical control group.

Confidentiality

All participation in the study will be confidential unless any participants display any risk to themselves or others, which will be detailed in the information sheet and informed consent sheet. More information on the information sheet and informed consent form are detailed under management of risks to project.

Participants

The ED sample participants employed will range from 12 to 18 years old, female and currently seen by CAMHS with a DSM-5 diagnosis of an ED. Their capacity to consent will be discussed and confirmed with the nursing staff who work with them before being approached for participation. Different consent forms and information sheets will be used for those aged 12 to 15 years and those aged 16 to 18 years old.

The non-clinical control sample will be recruited from local secondary schools within the NHS boards employed. They will be matched for age and gender and have no history of ED or a current diagnosis or any other psychiatric or medical illnesses.

Procedure

Potential participants who meet the criteria and are able to give capacity to consent will be approached by the researcher and consented into the study. They will then be verbally administered four questionnaires by the researcher, or other nursing staff within the

service, to encourage all items to be completed and to also answer any questions/issues should they arise. If required, participants will be offered breaks and the opportunity to complete the measures over a period of time should they deem the experience too fatiguing and too much stress on cognitive capacity. Questionnaires have been chosen to not last over an hour to administer (each timing detailed further under data collection). Once the measures are completed, participants will be debriefed and offered the opportunity to ask any further questions or voice any concerns.

5) Please list the principal inclusion and exclusion criteria for clinical sample (IRAS A17-1 and A17-2);

Principal inclusion criteria:

- Females
- Age between 12 and 18 years old
- Fluent in English
- Diagnosis of an ED as specified by DSM-5 (APA, 2013)
- Patient with CAMHS within the following NHS boards: Lothian, Fife, Borders and Glasgow
- Literate to the extent required to complete the questionnaires when verbally read to them

Principal exclusion criteria:

- Current substance use
- Diagnosis of a psychotic disorder
- Diagnosis of a learning disability
- Pervasive developmental disorder

6) How will data be collected?

Data will initially be collected through self-report quantitative questionnaire measures, which will be verbally administered to the participants and verbatim results recorded. All participants will be asked to sign an informed consent form after being given information about the study and the opportunity to discuss with the researcher. Additionally, at the time of consent, participants will also be asked to consent to the researcher to access their case notes and health records to gain information regarding impulsive/self-destructive behaviour for further secondary analyses.

The following measures will be used;

- Adult Attachment Projective (George & West, 2001)
- Reflective Functioning Questionnaire for Youths (Ha *et al.*, 2013)
- Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994)
- Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004)

Adult Attachment Projective (AAP; George & West, 2001);

The AAP was developed as an adult attachment classification system, which is based on the analysis of individual's responses to a set of seven attachment related drawings and one neutral scene (George & West, 2001). These responses are narrative depictions which are then transcribed and coded, with the scoring evaluating qualities of discourse, content and defensive processing and also designates participants as secure, dismissing, preoccupied or unresolved (Ravitz *et al.*, 2010). Convergence between AAP and Adult Attachment Interview (George *et al.*, 1996) is reported as 94% (George & West, 2001), with inter-rater reliability being high ($\kappa=0.86$) (Ravitz *et al.*, 2010). The AAP also has excellent concurrent

validity, interjudge reliability and test-retest reliability with no effects of verbal intelligence or social desirability (George & West, 2001). Webster and Joubert (2011) provide preliminary evidence of its applicability of use within an adolescent population – citing the potential of the APP to assess clinically relevant variables, augment other psychological test data and enrich and inform decision making. Administration takes approximately 20 to 30 minutes.

Reflective Functioning Questionnaire for Youths (RFQ-Y; Ha et al., 2013);

The RFQ-Y contains 46 self-report items which assess adolescent reflective functioning. The measures are recorded on a Likert scale ranging from 'strongly disagree' to 'strongly agree'. It was developed to be less time and labour intensive than other reflective functioning measures (Ha et al., 2013). It has been found to have adequate internal reliability with significant positive associations with a criterion measure of reflective functioning, experimental based assessment of mentalization and relations of empathy, which Ha et al. (2013) continue to argue supports criterion and convergent validity. Administration takes approximately 15 minutes.

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994);

The EDE-Q is a self-report 36-item measure using a Likert scale which is adapted from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). Scores on the EDE-Q and EDE have been found to be highly correlated and to a similar degree across the four subscales; restraint over eating, avoidance of eating, food avoidance and dietary rules (Mond et al., 2004). It has a 28-day time frame and asks directly about the frequency of key eating disorder behaviours (Carter et al., 2001). Mond et al. (2004) found good concurrent validity and acceptable criterion validity. Previous research has found excellent internal consistency and two week test-retest reliability for the four subscales (Luce & Crowther, 1999). Additionally, it has been widely used with adolescents (e.g. Brown et al., 2004; Mayer et al., 2012). However, Mond et al. do continue to question the stability of items measuring the occurrence and frequency of the key behavioural features of ED, although all findings provided statistical significance. Administration takes approximately 10 minutes though if completed within the past 28 days with nursing staff, those results will be used instead.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004);

The DERS is a 36-item self-report measure which examines difficulties with emotion regulation and provides an indicator of broad difficulties with regard to this. The items examine various dimensions including lack of acceptance of emotions; inability to engage in goal-directed behaviour when distressed; impulse control difficulties; limited access to strategies for effective regulation; lack of awareness of emotions; and lack of clarity of emotions (Roemer et al., 2009). A Likert scale is used ranging from 'almost never' to 'almost always'. With research on adolescents, the DERS has shown excellent internal consistency, good test-retest reliability and adequate convergent validity with established measures of emotion dysregulation and emotional avoidance, as well as adequate predictive validity of self-reported behavioural outcomes which were associated with emotion dysregulation (Gratz & Roemer, 2004). It also has excellent internal consistency with Cronbach's $\alpha = 0.93$ (Gratz et al., 2006). Neumann et al. (2009) found that a confirmatory factor analysis suggested a similar factor structure in their adolescent sample compared to adults, which combined with results from their research shows promising internal consistency and validity in adolescents. Administration takes approximately 15 minutes.

Sample Size

7) *What sample size is needed for the research and how did you determine this? (IRAS A59 and A60);*

Using Rothschild-Yakar *et al.* (2010) effect size for group differences in RF between AN and controls of $f^2 = 0.27$, a compromise analysis power calculation was conducted using G*Power (Faul *et al.*, 2009). The analysis suggested an estimated sample size needed of 74 participants for the study; 37 in each group for ED sample and non-clinical controls. This is for a significance level of $\alpha = 0.19$ and power of 0.8, which is recommended for studies of this nature using F-tests for multivariate analysis of variance and analysis of variance (Cohen, 1988).

Additionally, similar studies of this nature have used sample sizes of 69 participants with a diagnosis of BN (Pedersen *et al.*, 2012) and 79 participants which were split with 34 having diagnosis for AN bingeing/purging subtype and 35 non-ED controls (Rothschild-Yakar *et al.*, 2010).

8) *Outline reasons for your confidence in being able to achieve a sample of at least this size;*

Having met with clinical and academic supervisors it is acknowledged that a study of this nature involves a difficult client group to obtain a large sample from. However, this has been discussed in meetings and planned for prospectively rather than retrospectively and initial measures discussed to put in place.

It is anticipated that one NHS board will not be able to provide the recommended sample size, therefore multisite ethical approval will be requested across NHS boards; specifically NHS Lothian, Borders, Fife and Forth Valley as well as Glasgow which has a higher population and therefore may have a higher percentage of the required client group. This is with the knowledge that NHS Lothian CAMHS has around 50 ED referrals a year. Additionally, as shown by the projected timetable, much time has been dedicated to data collection in order to try and achieve as much as the anticipated sample size as possible.

Furthermore, Rothschild-Yakar *et al.* (2010) conducted a similar study analysing mentalization and relationships with the participants' parents as predictors of eating disordered behaviour. Within their study they used 34 female inpatients with AN bingeing/purging type and 35 matched non-ED controls and were able to gain significant results. Pedersen *et al.* (2012) more recently compared mentalization in BN for a randomised control trial using 69 final participants with BN compared to 20 females as a comparison group; final participant number totalling 89, again producing significant findings.

Analysis

9) *Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives (IRAS A62);*

All data collected will be analysed using the Statistical Package for Social Sciences (SPSS). Data will initially be assessed for normality and then either parametric or non-parametric analyses conducted accordingly. As there are two or more dependent variables (attachment, reflective functioning, emotion regulation and eating behaviours) and the

study employs an independent variable with two levels (group which is divided into ED sample and non-clinical controls), a factorial multivariate analysis of variance (MANOVA) will be used for analysis.

The MANOVAs will be conducted to analyse group differences (ED versus controls) compared to the clinical measures obtained (attachment, reflective functioning, emotion regulation and eating behaviours). Analysis of variance (ANOVA) can be further used in order to analyse separate subscales between the groups, e.g. specific questions from the clinical measures, relationship between purging behaviours and reflective functioning, etc. Further linear regression will be conducted to analyse any further relationships of interest once the initial MANOVAs have been completed, as well as potentially bootstrapping the data for further analysis.

Management of Risks to Project

11) Please summarise the main potential risks to your study, the perceived likelihood of occurrence of these risks and any steps you will or have taken to reduce these risks. Outline how you will respond to identified risks if they should occur;

Potential participants will be identified from health professional staff as to whether the individual would be interested and have capacity to participate, which eliminates the need to seek parental consent. Once identified, the individual will have the study explained to them by the researcher, with the opportunity for any questions or issues to be voiced. The individual will be given an information sheet and also an informed consent form (tailored to age range), which they will be left to sign in their own time so that the presence of the researcher does not influence their participation. It will be made clear to the participant that they have the right to withdraw from the study at any time without having to give a reason. In a study of this nature there is the potential for the participants to become distressed and this will be made clear in the initial briefing, participants will also be debriefed afterwards and provided with information on who to contact if they feel further distress. The information sheet will contain the aims of the study, what their involvement requires, explanation about confidentiality and withdrawal from the study, as well as who to contact with issues/concerns. It will make clear that involvement is entirely voluntary and that involvement or withdrawal will not affect their routine care in any way. Once measures are completed, they will be given a written and verbal debrief as well with further information on who to contact if any queries arise. The information sheet and debrief will be given in a written format and also verbally in order to allow for any literacy or capacity issues. Regarding differing ages, two different information sheets will be created for different ages (broken into 12 to 15 year olds and 16 to 18 year olds) so that the study is fully understood and targeted at the relevant audience.

There are several potential risks relating to recruitment, which is reliant on there being a significant number of eligible individuals who would be willing to participate in the study. Reliance will be given to the multi-disciplinary team in assistance identifying and potentially recruiting eligible participants and the researcher will regularly attend team meetings to raise awareness of the study and keep the teams up to date with its progress.

As the researcher will be reading the questionnaires to the participant, this limits the chance that an item may be missed or even a whole questionnaire. However, any missing data or missed questions which the participant does not wish to answer will be recorded with a missing data analysis incorporated for statistical analysis.

The self-report questionnaires ask the participant about their eating behaviours, reflective functioning, emotion regulation and attachments; all of which have the potential to cause distress. All of the measures being used have been widely used in previous research with adolescents with no concerns reported or distress caused to participants. Nonetheless, it is important to take this into account and ensure that the participants know of any potential emotional risk. This will be discussed when explaining the study and in the participant information sheet and also information and advice will also be provided should the participant experience any distress related to the study, e.g. Child Line telephone number, to contact their GP, as well as the researchers information to flag any concerns. A protocol will also be developed with health professionals to follow if an individual within the control group is found to have an eating disorder, which will be stated in the information sheet.

Another risk is data protection and confidentiality. This will be minimised by clearly highlighting to the potential participant verbally and on the participant information sheet and consent form that participation is voluntary and entirely confidential, with questionnaire results being coded. All participants will be anonymous and provided with a unique number so that the data cannot be identified and, if the participant requests, removed and destroyed if they no longer wish to participate. All identifying information will be removed and results coded, which will all remain confidential and not feature in the write up. All of the questionnaires and informed consent forms will be stored in a locked and secure location for one year, after this time they will then be destroyed. Numerical codes will be applied with only the researcher and supervisors having access to this information. This is needed if the participant wishes to withdraw from the study, so their data can be accessed and securely destroyed. The data and consent forms will be stored in locked cabinets within the NHS Health Board department, with the participants' numerical codes being stored in the same way but in a different locked cabinet. When data input commences it will continue to be anonymised and password protected.

Knowledge Exchange

12) How do you intend to report and disseminate the results of the study? (IRAS A51);

The study will be written for submission as part fulfilment for a Clinical Psychology Doctoral thesis, which will be available through the University of Edinburgh. A summary of the study will also be sent to the participants who requested it on their consent form. The systematic review and journal articles required for submission will be submitted to an appropriately identified relevant peer reviewed journal (e.g. International Journal of Eating Disorders). Within the NHS Health Boards in which the study is implemented, the findings will be communicated through a written summary and presentation. Opportunities will also be sought to disseminate the results further at national level, e.g. at BPS conferences, etc.

13) What are the anticipated benefits or implications for services of the project?;

The Mental Health Strategy for Scotland (2012-2015) reports that around 1.6 million people in the UK suffer from ED, with 86% of those being female, further arguing that this shows a female bias. As currently within the UK mental health services are primarily delivered through the NHS and local authorities, research assessing what it is that potentially contributes to the formation of ED can help us to understand what can assist and tailor interventions to benefit the individual. This can in turn then reduce the costs to the NHS and potentially the number of individuals who are admitted into inpatient units; further research even so far to reduce any relevant behaviours/factors before a diagnosis

of ED is reached. Research within ED and attachment and mentalization is particularly relevant and beneficial currently as there is no evidence base and it has been reported that treatment only decreases symptoms in around half of those who receive psychological therapy (Telch *et al.*, 2001). This is further supported by the fact that ED is incredibly costly and difficult to treat with an increasing recognition that prevention efforts should focus on younger girls (Newmark-Sztainer *et al.*, 2000). Therefore, research in what potentially contributes towards ED formation and what future therapy should focus on would benefit the NHS greatly.

14) Are there any potential costs to this project?;

The main financial cost is of the training for the AAP, which one of the academic supervisors is due to attend this year and has already been financed, therefore will be at no cost for this project. This is necessary to the project in order to reliably analyse the results from the AAP, which has already been discussed and agreed with said supervisor. There are no other anticipated costs for the University of Edinburgh.

The costs to the NHS Board will involve printing and photocopying costs for the questionnaires as well as travel expenses for the researcher to the different NHS sites, which has been discussed with thesis supervisors and the researcher's line manager. As the clinical measures previously listed are already acquired by the academic supervisors, there will be no further costs in gaining the rights to use them.

15) Any other relevant information;

None to note.

Appendix 1:

Methodological Review

Main Academic Thesis Supervisor's Appraisal of Project Risk

Supervisor's Name: Dr Fiona Duffy

Do you consider that the project should proceed in broadly its current form?

(Delete as appropriate)

Yes

Please outline the reasons for your response. In particular, highlight any areas of risk to the completion of the project that have not been fully addressed within the proposal and any steps that could be taken to reduce risks:

This project provides a methodologically sound and theoretically appropriate research project with the potential for significant clinical implications. Risks to the study will involve recruitment due to relative numbers of eating disorder presentations in CAMHS participant group but the student has broadened her recruitment strategy to support this. I would also advise the student to make early connections with Edinburgh council to support control group recruitment from schools.

Fiona Duffy

Research portfolio appendices

Appendix 3a – Research portfolio references

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Appendix 3b – International Journal of Eating Disorders author guidelines

ORIGINALITY

The journal accepts for review manuscripts that have not been published or are not currently elsewhere under review.

CONTENT TYPES

Manuscripts published in IJED include: (1) Original Articles; (2) Brief Reports; (3) Reviews (systematic reviews and meta-analyses); (4) Commentaries; (5) Clinical Case Reports; and (6) "An Idea Worth Researching". All word limits relate to the body of the text (i.e., not including abstract, references, tables and figures) and represent maximum lengths. Authors are encouraged to keep their manuscript as short as possible while communicating clearly.

When uploading their manuscript, authors will be asked to complete a checklist indicating that they have followed the Author Guidelines pertaining to the appropriate article type.

To summarize, the article types are:

(1) Original Articles report substantive research that is novel, definitive or complex enough to require a longer communication. Only a subset of research papers are expected to warrant full length format.

- Word Limit: 4,000 (excluding abstract, references, tables or figures)
- Abstract: 250 words.
- References: 60 are recommended; more are permissible, for cause.
- Figures/Tables: a maximum of 8 essential tables/figures, overall.

The methods section should include a statement about sample selection, response rate, and other factors that would impact selection or response bias and, in turn, representativeness of the sample. Inclusion of small samples requires justification and authors should be mindful of the recommendations concerning minimal sample sizes in subfields (e.g., genetic research, instrument development, etc., where adequate samples may number in the hundreds).

Authors also are asked to provide information about reliability and validity of study measures as applicable to their sample.

If the study involves qualitative data, authors need to include a statement about sample size in relation to theme saturation. We recommend that authors review the BMJ checklist for studies involving qualitative methods and conduct and report their analyses accordingly.

If the work involves cross-cultural assessment or assessment in a new language or study population, authors should provide information about local literacy in the language of assessment, the validity of (or process for validating) a translation of an assessment, and for inclusion of regional samples, a statement about the representativeness of the regional sample (or distinction from) the national sample. If statistical analyses are employed, effect

size estimates should be reported in the results section.

(2) Brief Research Reports. This contribution type is intended for manuscripts describing studies with straightforward research designs, pilot or “proof of concept” studies, and replications. Authors are advised that the instructions regarding sample description and, if applicable, description of qualitative methods or cultural assessments provided for Original Articles (see above) also apply to Brief Reports.

- Word Limit: 1,500 (excluding abstract, references, tables or figures).
- Abstract: 200 words.
- References: 20 are recommended; more are permissible, for cause.
- Figures/Tables: a maximum of 2 essential tables/figures, overall.

If statistical analyses are employed, effect size estimates should be reported in the results section.

(3) Review articles critically review the status of a given research area and propose new directions for research and/or practice. Both systematic and meta-analytic review papers are welcomed if they review a literature that is advanced and/or developed to the point of warranting a review and synthesis of existing studies. Reviews of topics with a limited number of studies are unlikely to be deemed as substantive enough for a Review paper. The journal does not accept papers that merely describe or compile a list of previous studies without a critical synthesis of the literature that moves the field the forward.

- Word Limit: 7,000 (excluding abstract, references, tables or figures).
- Abstract: 250 words.
- References: 100.
- Figures/Tables: no maximum, but should be appropriate to the material covered.

All Review articles must follow the PRISMA Guidelines (www.prisma-statement.org), summarized in a 2009 *J. Clin. Epidemiol.* article by Moher et al. entitled “*Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement*” (DOI: 10.1016/j.jclinepi.2009.06.005), freely available for download in both English and Spanish.

Authors who choose this contribution type must complete the Review Checklist upon submission of the manuscript, an example of which can be found here. This example is for informational purposes only. During the submission process, Authors will be prompted to complete the Review Checklist directly in ScholarOne. The rationale for any unchecked items on the Review Checklist must be explicitly described in the accompanying Cover Letter.

(4) Commentaries are solicited by the Editors when multiple perspectives on or critical appraisal of an article would assist in placing that article in context. Unsolicited commentaries are not accepted.

- Word Limit: 1,500 (excluding abstract, references, tables or figures).
- Abstract: no abstract.
- References: 5, using the footnote format rather than the journal’s standard format.
- Figures/Tables: none.

(5) Clinical Case Reports detail key elements of cases where there is novelty in the presentation, pathology or treatment, and where that novelty will inform clinicians and researchers about rare presentations or novel ideas. This category will often be appropriate to rare biological or psychological presentations. Reports of rigorously conducted studies employing single-case experimental designs are especially welcome. Every effort should be taken to ensure the anonymity of the patient concerned, and any clinicians not involved as authors. If there is any potentially identifiable information, then it is the responsibility of the authors to obtain approval from the local Institutional Review Board (IRB) (or equivalent) for the case to be reported, and a copy of that approval should be made available to the Editor on request.

- Word Limit: 1,500 (excluding abstract, references, tables or figures).
- Abstract: 150 words.
- References: 20.
- Figures/Tables: a maximum of 2 essential tables/figures, overall.

(6) “An idea Worth Researching” is a contribution type where authors propose an idea that may not yet have adequate empirical support or be ready for full empirical testing, but holds great promise for advancing research of eating disorders. Authors are encouraged to write a piece that is bold, forward looking, and suggestive of new and exciting avenues for research and/or practice in the field.

- Word Limit: 1,500 (excluding abstract, references, tables or figures).
- Abstract: no abstract.
- References: 5 maximum, in footnote format.
- Figures/Tables: a maximum of 2 essential tables/figures, overall

MANUSCRIPT PREPARATION & FORMAT

Speaking of That: Terms to Avoid or Reconsider

Authors should refrain from using terms that are stigmatizing or terms that are ambiguous. For further explanation and examples, see the 2016 IJED article by Weissman et al. entitled "*Speaking of that: Terms to avoid or reconsider in the eating disorders field*" (DOI: 10.1002/eat.22528).

General Format

Manuscripts must be typed in English and double-spaced throughout, with margins of at least one inch at the top, bottom, and both sides of each page. Please use line numbers, restarting the numbering of lines on each page. All manuscripts are subject to copyediting; however, it is the primary responsibility of the authors to proofread thoroughly and ensure correct spelling and punctuation, completeness and accuracy of references, clarity of expression, thoughtful construction of sentences, and legible appearance prior to the manuscript's submission. Preferred spelling follows Webster's New Collegiate Dictionary or Webster's Third New International Dictionary. The manuscript should conform to accepted English usage and syntax. Use headings to indicate the manuscript's general organization. Do not use a heading for the introduction. In general, manuscripts will contain one of several levels of headings. Centered upper case headings are reserved for Methods, Results, and Discussion sections of the manuscript. Subordinate headings (e.g., the Participants or Procedure subsection of Methods) are typed flush left, underlined, in upper case and lower

case letters. The text begins a new paragraph. Number all pages of the manuscript except the figures (including title page and abstract) consecutively. Manuscripts that do not conform to the Author Guidelines stated here will not be considered further. Number all pages of the manuscript except the figures (including title page and abstract) consecutively.

Parts of the manuscripts should be arranged in the following sequence:

(1) Title page. (numbered 1). Titles should be short and specific, conveying the main point of the article. When developing the title (and abstract), authors are encouraged to review tips for improving search engine optimization (SEO) to ensure that their articles are highly visible to potential readers. Tips on SEO are given here; visit www.wileyauthors.com for more helpful hints for authors. The title page should include the full names, titles, and affiliations of all authors, and an abbreviated title (Running Head) that should not exceed 50 characters, counting letters, spacing, and punctuation. The Running Head should be typed in upper case letters centered at the bottom of the title page. Each page of the manuscript (excluding figures) should be identified by typing the first two or three words of the full title in the upper right-hand corner above the page number. No running head is required for letters to the editor. Indicate the word count for the abstract and the word count for the manuscript (excluding figures, tables, and references).

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(4) References. Begin on separate page, with the word "References" typed in upper and lower case letters, centered at the top of the page. References must be double spaced.

(5) Appendices. Type each appendix on a separate page labeled "Appendix A, B", etc., in the order in which they are mentioned in the text.

(6) Footnotes. Start on separate page.

(7) Tables. Tables should be double-spaced, including all headings, and should have a descriptive title. If a table extends to another page, so should all titles and headings. Each table should be numbered sequentially in Arabic numerals and begin on a new page. Be sure to explain abbreviations in tables even if they have already been explained in-text. Consider the tables and figures to be self-contained and independent of the text. They should be interpretable as stand-alone entities.

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(9) Acknowledgements/Disclosure of Conflicts. Start on a separate page. Any possible conflict of interest, financial or otherwise, related to the submitted work must be clearly indicated in the manuscript. Acknowledge significant contributions that do not warrant authorship; list sources of support (e.g., federal, industry, or other funding).

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Every effort should be taken to ensure the anonymity of the patient concerned, and any clinicians not involved as authors. If there is any potentially identifiable information, then it is the responsibility of the authors to seek and obtain approval from the local Institutional Review Board (IRB) (or equivalent) for the case to be reported, and a copy of that approval should be made available to the Editor on request.

Presenting Statistical Data in Text

For additional detail regarding statistical requirements for the manuscript, see IJED Statistical Formatting Requirements. For more detailed background information on statistical analyses and their rationale authors are referred to IJED Statistical Reporting Guidelines.

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References

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Journal Article: 1. Endicott J, Spitzer RL. A diagnostic interview: The schedule for affective disorders and schizophrenia. *Arch Gen Psychiatry* 1978;35:837-844.

Book Chapter: 2. Fairburn CG, Cooper Z. The eating disorders examination (12th ed). In: Fairburn CG, Wilson GT, editors. *Binge eating: nature, assessment, and treatment*. New York: The Guilford Press, 1993, p. 317-331.

Book: 3. Tudor I. *Learner-centeredness as language education*. Cambridge: Cambridge University Press; 1996.

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Supplementary materials will be made available to readers as a link to the corresponding articles on the journal's website. Supplemental materials should be placed at the very end of the manuscript and clearly marked with a centered title “Supplemental Materials: For Online Publication Only.”

ADDITIONAL MANUSCRIPT PREPARATION GUIDELINES

1. Some authors use terms such as “anorexics” or “bulimics” as personal pronouns, referring to groups of individuals by their common diagnosis. Language of this type should be replaced with such terms as “individuals with anorexia nervosa”, “people with bulimia nervosa”, or “participants with eating disorders”.
2. The term “participants” should be used throughout the article instead of “subjects”.
3. Standard rules will continue to govern the use of capitalization in Headings and Subheadings. However, when a minor word in a Heading or Subheading actually has special or unique meaning, the rule should be overridden.
4. When referring to gender, “males” and “females” should be used in cases where the study samples include both children (below age 18) and adults; when the participants comprise adults only, the terms “men” and “women” should be used. In articles that refer to children (i.e., below the age of 13), “boys” and “girls” should be used.
5. In articles that refer to genetic material, the names of genes should be spelled out in full the first time they appear in the text, after which an italicized abbreviation can be substituted.
6. The word “data” is plural; therefore, text should follow accordingly (for example, “The data show...the data are ... the data were...”).
7. For information on how to present *p* values and other standard measurements see IJED Statistical Formatting Requirements.

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Appendix 3c – European Eating Disorders Review author guidelines

Author Guidelines Manuscript Submission

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- Quick and easy submission
- Administration centralised and reduced
- Significant decrease in peer review times

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Manuscript style. All submissions, including book reviews, should be double-spaced and clearly legible.

The first page should contain the **title** of the paper, full names of all authors, the address where the work was carried out, and the full postal address including telephone, fax number and email to whom correspondence and proofs should be sent. The name(s) of any **sponsor(s)** of the research contained in the paper, along with **grant number(s)** should also be included.

The second sheet should contain an **abstract** of up to 150 words. An abstract is a concise summary of the whole paper, not just the conclusions, and is understandable without reference to the rest of the paper. It should contain no citation to other published work.

Include up to five **keywords** that describe your paper for indexing purposes.

- **Research articles** reporting new research of relevance as set out in the aims and scope should not normally exceed 6000 words with no more than five tables or illustrations. They should conform to the conventional layout: title page, summary, introduction, materials and methods, results, discussion, acknowledgements and references. Each of these elements should start on a new page. Authors may not find it necessary to use all of these subdivisions, and they are listed here only as a guide.

- **Review articles** should offer a synthesis of current knowledge in a field where rapid or significant progress has been made. The text should ideally not exceed 7000 words, 50 references and 5 figures or tables.
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Reference style . The APA system of citing sources indicates the author's last name and the date, in parentheses, within the text of the paper.

A. A typical citation of an entire work consists of the author's name and the year of publication .

Example: Charlotte and Emily Bronte were polar opposites, not only in their personalities but in their sources of inspiration for writing (Taylor, 1990). Use the last name only in both first and subsequent citations, except when there is more than one author with the same last name. In that case, use the last name and the first initial.

B. If the author is named in the text, only the year is cited .

Example: According to Irene Taylor (1990), the personalities of Charlotte. . .

C. If both the name of the author and the date are used in the text, parenthetical reference is not necessary .

Example: In a 1989 article, Gould explains Darwin's most successful. . .

D. Specific citations of pages or chapters follow the year .

Example: Emily Bronte "expressed increasing hostility for the world of human relationships, whether sexual or social" (Taylor, 1988, p. 11).

E. When the reference is to a work by two authors, cite both names each time the reference appears .

Example: Sexual-selection theory often has been used to explore patters of various insect matings (Alcock & Thornhill, 1983) . . . Alcock and Thornhill (1983) also demonstrate. . .

F. When the reference is to a work by three to five authors, cite all the authors the first time the reference appears. In a subsequent reference, use the first author's last name followed by *et al* . (meaning "and others") .

Example: Patterns of byzantine intrigue have long plagued the internal politics of community college administration in Texas (Douglas *et al* ., 1997) When the reference is to a work by six

or more authors, use only the first author's name followed by *et al.* in the first and all subsequent references. The only exceptions to this rule are when some confusion might result because of similar names or the same author being cited. In that case, cite enough authors so that the distinction is clear.

G. When the reference is to a work by a corporate author, use the name of the organization as the author .

Example: Retired officers retain access to all of the university's educational and recreational facilities (Columbia University, 1987, p. 54).

H. Personal letters, telephone calls, and other material that cannot be retrieved are not listed in References but are cited in the text .

Example: Jesse Moore (telephone conversation, April 17, 1989) confirmed that the ideas. . .

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Book

Paloutzian, R. F. (1996). *Invitation to the psychology of religion* (2nd ed.). Boston: Allyn and Bacon.

Book with More than One Author

Natarajan, R., & Chaturvedi, R. (1983). *Geology of the Indian Ocean* . Hartford, CT: University of Hartford Press.

Hesen, J., Carpenter, K., Moriber, H., & Milsop, A. (1983). *Computers in the business world* . Hartford, CT: Capital Press. and so on.

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Degelman, D., & Harris, M. L. (2000). *APA style essentials*. Retrieved May 18, 2000, from Vanguard University, Department of Psychology Website:
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